

EAST

| L # | Hits | Search Text | DBs | Time Stamp |
|----------|-------|---|---------------------------------|---------------------|
| 1 L4 | 66063 | ((POSTAGE OR FEE OR PRICE OR COST OR CHARGE) NEAR5 (WEIGH OR WEIGHING OR SCALE OR WEIGHT)) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:41 |
| 2 L5 | 5599 | ((IMPRINT OR IMPRESSION OR STAMP OR INDICUM OR INDICIA OR LABEL) NEAR5 (FRANKING OR MAILING OR SHIP OR POSTAGE OR SHIPPING OR FRANK OR MAIL OR POST)) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:43 |
| 3 L6 | 1 | ((INPRESSION OR INPRINT) NEAR5 (FRANKING OR MAILING OR SHIP OR POSTAGE OR SHIPPING OR FRANK OR MAIL OR POST)) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 4 L7 | 1834 | (print or printing or printed) (stamp or stamping or print or printing or printed) near5 (5 or 6) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 5 L8 | 3265 | (imprint or imprinting or imprinted) near5 (5 or 6) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 6 L9 | 1 | (imprint or imprinting or imprinted) near5 (5 or 6) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 7 L10 | 445 | (impress or impressing or impressed) near5 (5 or 6) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 8 L11 | 18 | (impress or impressing or impressed) near5 (5 or 6) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 9 L12 | 0 | (5 or 6) and (7 or 8 or 9 or 10 or 11 or 12) | USPAT; USOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 10 | L13 | 3419 | | |

| L # | Hits | Search Text | DBs | Time Stamp |
|-----|------------|--|--|---------------------|
| 11 | L14 380 | 4 and 13 | USPAT; USOOCR; EPO; JPO; Derwent | 2000/07/05 15:44 |
| 12 | L15 6857 | (card or module or debit or credit or smartcard or smartmodule) near5 (pay or paid or paying or payment) | USPAT; USOOCR; EPO; JPO; Derwent | 2000/07/05 15:45 |
| 13 | L16 5650 | (card or module or debit or credit or smartcard or smartmodule) near5 (charge or charges or charging) | USPAT; USOOCR; EPO; JPO; Derwent | 2000/07/05 15:48 |
| 14 | L17 70 | 14 and (15 or 16) Scanned Ti, Kwie call | USPAT; USOOCR; EPO; JPO; Derwent | 2000/07/05 18:17 |
| 15 | L18 382306 | @pd<=19710101 6 | USPAT; USOOCR; EPO; JPO; Derwent | 2000/07/05 18:18 |
| 16 | L19 4078 | (177/25.15 or 235/375 or 705/16 or 705/17 or 705/400 or 705/406 or 705/407 or 705/408 or 705/410).cc1s.. | USPAT; USOOCR; EPO; JPO; Derwent | 2000/07/05 18:19 |
| 17 | L20 48 | 18 and 19 Scanned Ti call | USPAT; USOOCR; EPO; JPO; Derwent | 2000/07/05 18:19 |

| | Document ID | Issue Date | Inventor | Current OR | Current XRef | Pages |
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| 1 | JP 06149815 A | 19940531 | ARIMORI, FUKUO | | | 3 |
| 2 | US 4651921 A | 19870324 | MCKELLAR, Mark B. | 232/25 | 232/43.4 | 12 |
| 3 | US 4802218 A | 19890131 | Wright, Christopher B. , et al. | 705/60 | ; 380/51 ; 705/61 ; 705/67 ; 705/68 ; 713/166 | 27 |
| 4 | US 4864618 A | 19890905 | Wright, Christopher B. , et al. | 380/51 | 340/825.34 ; 705/60 ; 705/62 | 23 |
| 5 | US 4900905 A | 19900213 | Pusic, Pavo | 235/381 | 235/375 ; 235/380 ; 235/382.5 | 29 |
| 6 | US 4900904 A | 19900213 | Wright, Christopher B. , et al. | 235/381 | 235/380 ; 235/441 ; 705/407 ; 705/410 | 23 |
| 7 | US 4900903 A | 19900213 | Wright, Christopher B. , et al. | 235/380 | 235/381 | 22 |

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| 9 | US 5025386 A | 19910618 | Pusic, Pavo | 700/227 | ; 705/407 ; 705/408 | 27 |
| 10 | US 5065000 A | 19911112 | Pusic, Pavo | 235/381 | ; 705/407 ; 232/27 ; 705/408 | 14 |
| 11 | US 5233532 A | 19930803 | Ramsden, Gary W. | 705/407 | ; 705/408 | 13 |
| 12 | US 5272640 A | 19931221 | Wu, Sheng J. | 705/406 | 705/407 | 29 |
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| 15 | US 5369221 A | 19941129 | Ramsden, Gary W. | 177/25.15 | 705/407 | 18 |
| 16 | US 5481464 A | 19960102 | Ramsden, Gary W. | 705/407 | 177/25.15 ; 235/375 ; 235/380 | 20 |
| 17 | US 5615120 A | 19970325 | Schwartz, Robert G., et al. | 705/407 | 235/462.01 ; 708/131 ; 708/141 | 30 |
| 18 | US 5656799 A | 19970812 | Ramsden, Gary W., et al. | 177/2 | 177/25.14 ; 177/25.15 | 48 |
| 19 | US 5826246 A | 19981020 | Bator, Feliks , et al. | 705/403 | 705/410 | 9 |

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| 2 | WO 9217861 A1 | 19921015 | GIL, ASHER , DARON, JOHN B | | | 65 |
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CLIPPEDIMAGE= JP406149815A

PAT-NO: JP406149815A

DOCUMENT-IDENTIFIER: JP 06149815 A

TITLE: STOCK CONTROLLER FOR MAIL VENDING MACHINE

PUBN-DATE: May 31, 1994

INVENTOR-INFORMATION:

NAME

ARIMORI, FUKUO

ASSIGNEE-INFORMATION:

| NAME | COUNTRY |
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| NIPPON AVIONICS CO LTD | N/A |
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APPL-NO: JP04327567

APPL-DATE: November 13, 1992

INT-CL_(IPC): G06F015/21; G07F009/00

ABSTRACT:

PURPOSE: To automatically process the payment of necessary amounts of postage stamps and post cards, the adjustment of postal charges, the issue of receipts, the output of daily sales reports, the stock control, etc.

CONSTITUTION: The operating contents of a display device 8 containing a touch panel show the purchase of the postage stamps or post cards, the charge is announced through a voice output device 5 and at the same time displayed. Then the requested number of sheets of postage stamps or post cards are discharged through a discharging port 10 after detection of a fact that a user paid the due charge. Then a receipt is issued from a receipt issuing machine 3. When the device 8 shows the operation of a mail, the charge is announced based on the weight, the type and the handling type of the mail. At the same time, the postal charge is displayed at a prescribed part. Then the equivalent postage stamps are discharged through the port 10 after the user paid the due charge. Then a receipt is also issued by the machine 3.

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DOCUMENT-IDENTIFIER: US 4651921 A

TITLE: Postal service facility

BSPR: According to the invention, the postal service facility includes a single facility housing providing means for a parton's performing of several tasks within a comparatively small space. The housing includes areas where patrons can use postal service equipment -- postage meters, scales, stamp dispensing machines, and the like -- installed on or within the surfaces of the housing. It is envisioned that means for direct payment of charges for postal and parcel services can be provided, such as electronic or other means for credit or debit transactions to pay for services utilized. The housing can further provide locations for deposit and storage of letters, packages, and similar items for later shipping by mail or private parcel services.

DEPR: In FIG. 1, the postal service facility of the invention, indicated generally at 10, includes a housing 12 supported by a base 14 with a canopy 16 overhead. Patrons can utilize postal service equipment (not shown), for example, postage meters, scales, or stamp dispensing machinery, installed on or in the surfaces of the housing 12 at or near access areas 20, 22. Mail deposit slots 24, 26 are available for utilizing U.S. mail or private parcel services. Users can deposit packages through parcel slot 28 for subsequent pick-up by a delivery service through a parcel retrieval door 30 from storage areas (not shown) within the housing 12.

DOCUMENT-IDENTIFIER: US 4802218 A

TITLE: Automated transaction system

BSPR: By comparison, off-line transactions, i.e. between a user with an authorized card and a terminal not connected to a central account system, have the advantage that the vendor does not have to confirm each transaction. A card bearer merely inserts the card in a terminal to pay for a purchase and the authorized amount of the card is debited for the amount of the transaction. In off-line transactions, the vendor's responsibility can be reduced and the transaction process simplified, so that a transaction can be completely automated through the use of widely distributed user cards and automated terminals.

BSPR: One potential area of application of automated systems employing account or credit cards is in postage vending and metering machines. Purchases of postage and mailing transactions are made primarily in person with cash through tellers at post offices. Only limited types of postage stamps can be purchased from public vending machines. Most private postage metering machines have limited operational features and must have their metering devices removed periodically to a post office for refilling. The size and weight of the metering devices make them inconvenient to carry. Some metering systems can be refilled by a remote computer, but the caller must still phone the computer center and execute the operator's instructions on the postage meter manually.

DEPR: A card automated transaction system incorporating the particular features of the invention will now be described. It should be understood that although particular embodiments are described, the invention is not limited to such embodiments, but encompasses all modifications and variations which use the principles of the invention. For purposes of this description, the transaction terminal is selected to be a postage metering terminal for printing a postmark on a label, envelope, or waybill for articles to be mailed or shipped. However, it should be understood that the general principles of the invention have broad applicability to any type of transaction terminal in which a microprocessor card may be used. For example, the terminal may also be a cash or article dispensing machine or a printer which prints validation marks, coupons, receipts, tickets, inventory documents, etc.

DEPR: If the initial confirmation procedures are passed, the terminal MPU 30 next prompts the user to enter information for a postage transaction. The user inputs on keypad 31 the amount of postage requested and, as a further option, the zip code of the sender's location and the date. As the information is supplied in sequence, i.e. "Amount", "Zip", and "Date", it is displayed on display 32 for confirmation. Alternatively, the date may be maintained by the terminal MPU 30, and displayed for user confirmation. When all the correct information has been entered, an edge of an envelope 51 to be mailed, or a label or mailing form to be attached to an item to be mailed, is inserted in a slot 50 on one side of the postage metering terminal 20. The movement of the label or envelope may be controlled to bring it in registration with the print head, as provided in conventional metering machines. The user then presses the "Print" key to initiate a postage printing transaction.

DEPR: A related embodiment of the invention is illustrated in FIG. 4 which employs a second card having postal rate data stored in memory to compute the correct postage automatically. A

terminal 20, similar to the one previously described, includes a second slot 91 for a "rate" card 90. The terminal has a slot 50 in which a postal label or envelope 51 is inserted for imprinting by the printer 40. For a parcel 52, the label 51 is printed then affixed to the parcel for mailing. A scale 53 may be connected to the terminal and MPU 30 to provide the weight of the envelope or parcel 52.

DEPR: The rate card memory contains a current listing of the rates for a particular carrier. For example, if the carrier is the U.S. Postal Services, the Post Office rates are listed according to zone classifications, weight, and class of mail. The special services card memory contains a program for filling out a standard waybill form in accordance with the information required by and with indicia identifying the mailing services of a particular carrier. For example, if the carrier is the U.S. Postal Service, the special services card can provide the programs for printing waybills for Express Mail, Certified Mail, Registered Mail, Insured Mail, etc.

DEPR: The program operation of the postal waybill terminal 20' is illustrated in block diagram form in FIG. 8, and a sample waybill form is shown in FIG. 9. Upon insertion of the user card 10 in slot 11, the user confirmation procedures previously described are carried out between the terminal MPU 30 and card MPU 60. If an unauthorized card or user is detected, the card is locked and the terminal operations are terminated. With a valid user card, the terminal program then checks if a rate card 90 and/or a special services card 100 is inserted and whether each is valid. Validity can be determined by the issue number of the card or by an indicated expiration date. If there is no rate card or special services card, the terminal MPU requests the user to input the desired postage and goes to the print key decision block 121. The terminal is then used to print a postmark or postage label as described previously. If a valid services card is present, the terminal program displays a menu of mailing or carrier services from the services card and requests the user to select a service.

DEPR: Based upon the origin and destination zip codes and weight, the postal amount, other service charges, and the total amount 144-146 are calculated and displayed under program control using the rate card if appropriate. The total transaction amount is saved. If the "Print" key is depressed, the terminal program then sends the "commence" signal to the card MPU and printer MPU to execute the handshake procedure and debiting and printing operations as previously described. If an "Auto" mode key of the terminal is depressed or the user elects to continue in response to a prompt, the terminal program returns to the beginning of the transaction loop indicated at block 113. The terminal operation is terminated if the transaction loop is not continued, or if the handshake procedure is not completed.

CLPR: 31. An integrated automated transaction system according to claim 22 adapted for postal transactions, wherein said system further includes a rate card having an IC memory for storing postal rate information in accordance with zone and weight classifications, said transaction terminal further comprises information input means, a terminal microprocessor, a printer for printing postal indicia as said value dispensing section, second means for receiving said rate card, and means for establishing a second data communication path between said rate card memory and said terminal microprocessor, and said terminal microprocessor further includes program means for calculating a requested postage value amount in response to zone and weight information input to said terminal using said postal rate information of said rate card memory.

DOCUMENT-IDENTIFIER: US 4864618 A

TITLE: Automated transaction system with modular printhead having print authentication feature

BSPR: By comparison, off-line transactions, i.e. between a user with an authorized card and a terminal not connected to a central account system, have the advantage that the vendor does not have to confirm each transaction. A card bearer merely inserts the card in a terminal to pay for a purchase and the authorized amount of the card is debited for the amount of the transaction. In off-line transactions, the vendor's responsibility can be reduced and the transaction process simplified, so that a transaction can be completely automated through the use of widely distributed user cards and automated terminals.

BSPR: One potential area of application of automated systems employing account or credit cards is in postage vending and metering machines. Purchases of postage and mailing transactions are made primarily in person with cash through tellers at post offices. Only limited types of postage stamps can be purchased from public vending machines. Most private postage metering machines have limited operational features and must have their metering devices removed periodically to a post office for refilling. The size and weight of the metering devices make them inconvenient to carry. Some metering systems can be refilled by a remote computer, but the caller must still phone the computer center and execute the operator's instructions on the postage meter manually.

DEPR: A card automated transaction system incorporating the particular features of the invention will now be described. It should be understood that although particular embodiments are described, the invention is not limited to such embodiments, but encompasses all modifications and variations which use the principles of the invention. For purposes of this description, the transaction terminal is selected to be a postage metering terminal for printing a postmark on a label, envelope, or waybill for articles to be mailed or shipped. However, it should be understood that the general principles of the invention have broad applicability to any type of transaction terminal in which a microprocessor card may be used. For example, the terminal may also be a cash or article dispensing machine or a printer which prints validation marks, coupons, receipts, tickets, inventory documents, etc.

DEPR: If the initial confirmation procedures are passed, the terminal MPU 30 next prompts the user to enter information for a postage transaction. The user inputs on keypad 31 the amount of postage requested and, as a further option, the zip code of the sender's location and date. As the information is supplied in sequence, i.e. "Amount", "Zip", and "Date", it is displayed on display 32 for confirmation. Alternatively, the date may be maintained by the terminal MPU 30, and displayed for user confirmation. When all the correct information has been entered, an edge of an envelope 51 to be mailed, or a label or mailing form to be attached to an item to be mailed, is inserted in a slot 50 on one side of the postage metering terminal 20. The movement of the label or envelope may be controlled to bring it in registration with the print head, as provided in conventional metering machines. The user then presses the "Print" key to initiate a postage printing transaction.

DEPR: A related embodiment of the invention is illustrated in FIG. 4 which employs a second card having postal rate data stored in memory to compute the correct postage automatically. A

terminal 20, similar to the one previously described, includes a second slot 91 for a "rate" card 90. The terminal has a slot 50 in which a postal label or envelope 51 is inserted for imprinting by the printer 40. For a parcel 52, the label 51 is printed then affixed to the parcel for mailing. A scale 53 may be connected to the terminal and MPU 30 to provide the weight of the envelope or parcel 52.

DEPR: The rate card memory contains a current listing of the rates for a particular carrier. For example, if the carrier is the U.S. Postal Services, the Post Office rates are listed according to zone classifications, weight, and class of mail. The special services card memory contains a program for filling out a standard waybill form in accordance with the information required by and with indicia identifying the mailing services of a particular carrier. For example, if the carrier is the U.S. Postal Service, the special services card can provide the programs for printing waybills for Express Mail, Certified Mail, Registered Mail, Insured Mail, etc.

DEPR: The program operation of the postal waybill terminal 30' is illustrated in block diagram form in FIG. 8, and a sample waybill form is shown in FIG. 9. Upon insertion of the user card 10 in slot 11, the user confirmation procedures previously described are carried out between the terminal MPU 30 and card MPU 60. If an unauthorized card or user is detected, the card is locked and the terminal operations are terminated. With a valid user card, the terminal program then checks if a rate card 90 and/or a special services card 100 is inserted and whether each is valid. Validity can be determined by the issue number of the card or by an indicated expiration date. If there is no rate card or special services card, the terminal MPU requests the user to input the desired postage and goes to the print key decision block 121. The terminal is then used to print a postmark or postage label as described previously. If a valid services card is present, the terminal program displays a menu of mailing or carrier services from the services card and requests the user to select a service.

DEPR: Based upon the origin and destination zip codes and weight, the postal amount, other service charges, and the total amount 144-146 are calculated and displayed under program control using the rate card if appropriate. The total transaction amount is saved. If the "Print" key is depressed, the terminal program then sends the "commence" signal to the card MPU and printer MPU to execute the handshake procedure and debiting and printing operations as previously described. If an "Auto" mode key of the terminal is depressed or the user elects to continue in response to a prompt, the terminal program returns to the beginning of the transaction loop indicated at block 113. The terminal operation is terminated if the transaction loop is not continued, or if the handshake procedure is not completed.

CLPR: 8. An improved printing means for a transaction terminal according to claim 1, wherein the requested value indicia to be printed is a postmark including a postage amount, and said print program means includes encoding means for generating an authentication code uniquely corresponding to a selected portion of a postmark requested to be printed.

CLPR: 16. A modular printing section according to claim 15, wherein the value indicia to be printed is a postmark including a postage amount, and said print program means includes encoding means for generating an authentication code uniquely corresponding to a selected portion of a postmark requested to be printed.

DOCUMENT-IDENTIFIER: US 4900905 A

TITLE: Automated mail collecting and telecommunication machine

BSPR: The present invention relates to electronic postage meters of the type having a microprocessor for controlling envelope stamping and the accounting for such stamping, and for the efficient and economical franking of letters. It also relates to motorized weighing conveyors mounted on an electronic weighing device and to electronic scales with the ability to print bar code labels. It further relates to printers able to print data entered on an alphanumerical keyboard in the form of laser readable bar code and to vending machines with the ability to accept payment in coins, bills, and debit, credit, or IC cards. It also relates to coin, and debit or credit card operated pay -phones, various devices used for the listing of data from some external database, and to telex machines.

BSPR: The present invention enables the electronic weighing of a mailing to be performed automatically and securely, without the possibility for a customer to influence the weighing, and the postage is automatically calculated according to the mailing weight data and the destination data entered on the keyboard. Therefore, according to the process of the present invention, there is no possibility for a higher or lower postage being calculated and since each mailing can be returned to the customer in the case of insufficient postage paid or data entered, no further check as to whether the postage was paid is necessary.

BSPR: Yet another object of the present invention is to provide a pay-phone device for public use. First, conventional pay-phones will be discussed. Presently, pay-phones for public use are designed to accept payment means, such as coins, and debit or credit cards, and most of them are able to accept only one out of the three said means. It is an object of the present invention to provide a device wherein coins, bills, debit cards, different kinds of credit cards, and IC cards can be used to pay the charge by using the same payment accepting means as is used for the mail collection purpose. According to the present invention, the same displaying and processing means are used and this enables the device to be economical while giving the customer all possible options of mode of payment.

BSPR: In order to achieve the objects of the present invention, there are provided means for accepting payment, either in coins, bills, or debit, credit, or IC cards, means for entering any required data, means for displaying said data and the instructions for the use of the machine during the different phases of the process, means for printing, dispensing, processing, and storing the required data, wherein all said means are used for all of the machine's various functions. There are also provided means for the inserting, driving, pressing, bar code printing, and the storing of the mailing, used for the machine's mail collection purpose which is one object of the present invention.

BSPC: BACKGROUND OF THE INVENTION An object of the present invention is to provide an automated machine for the collection and stamping of mail. Electronic postage metering and stamping machines will be discussed first. Conventional postage metering and stamping machines have the ability to electronically weigh envelopes, package mailings, and to stamp the postage on an envelope. They are operated by an employee and the postage is determined according to the

envelope's weight and its destination. The postage can either be debited from the machine's previously charged non-volatile memory or paid in cash to the employee when the machine is used in postal offices. These machines do not significantly affect the further sorting and tracking process.

DEPR: If the charge is to be paid by a magnetic card, the machine continues the procedure as shown in FIG. 17. If the existing credit on the debit card is not sufficient, an additional amount can be inserted in cash or paid by a new debit card after the first card is debited to zero. If, however, the request is not fulfilled, the machine continues the above described returning procedure as shown in FIG. 19. For payment with a credit or IC card, as shown in FIG. 17, the data about the card and any corresponding charge is loaded into temporary memory unit 40 in order to be stored and forwarded for the purposes of later billing.

DEPR: Another function of the present invention is as a payphone device wherein the same previously described payment accepting and displaying means are used. Referring now to FIG. 1, there is shown a phone handle 10 hung on machine housing 1, comprising a phone unit connected to a phone line through the housing 1 and including a dialing keyboard inside its middle section. Referring now to FIG. 12, if there is no minimum amount required for using the machine as a pay-phone device, as soon as any amount is inserted, the customer can pick up the phone handle 10 and get a dial tone. For all other payment means, the card validity checking procedure corresponds to the one previously described for the machine's mail collection function and as shown in FIGS. 13 and 14.

DEPR: After the desired number is connected and if the payment was made by cash or through a debit card, the remaining credit is permanently displayed and the line remains connected for as long as the credit equals zero, as shown in FIG. 21. If the payment was made by a credit or IC card, the accumulated charge is permanently displayed and the line can be disconnected if a certain given limit is reached. Referring now to FIG. 21, if the line is disconnected by the customer before the credit equals zero or the limit is not reached, the customer has the opportunity to enter directions for a "follow on" procedure before any change from escrow or a card is returned, as shown in FIG. 23, after which the machine continues the procedure as shown in FIG. 24.

DEPR: Referring again to FIG. 22, according to the length of the entered message and its destination, the charge is calculated and displayed for the customer together with a request for an additional amount of payment if the amount in escrow is not sufficient to cover the charge. In the case of a debit card payment, a warning is also displayed and if the request is not fulfilled following the displayed warning, the message is erased and the inserted amount or the card are returned according to the procedure shown in FIG. 23. If the payment is correctly made, instructions on how to enter an execute order are displayed as shown in FIG. 22 and upon this order, the machine automatically dials the desired number and sends the entered message.

DEPR: In accordance with the present invention, the data storing and forwarding procedures and the change or card returning procedures are identical, regardless of the machine's function, to those shown in FIGS. 23 and 24. According to the process of the present invention, in any case when payment is made by a credit or IC card, a receipt for charges paid is printed and dispensed

to customer. Also according to the process of the present invention, and regardless of the machine's function or its stage in the procedures, a customer can always correct any entered data immediately by moving the pointer over the displayed text.

CLPV: determining means including said computer means and coupled to said data entry means and to said weighing means for determining the required postage for said item to be mailed;

CLPV: means including said computer means and coupled to said display means, to said data entry means, and to said determining means for detecting the presence of debit, credit, or IC cards, for reading said cards, for validating said cards, for charging said cards, and for returning said cards.

CLPV: determining means including said computer means and coupled to said data entry means and to said weighing means for determining the required postage for said item to be mailed;

DOCUMENT-IDENTIFIER: US 4900904 A

TITLE: Automated transaction system with insertable cards for downloading rate or program data

BSPR: By comparison, off-line transactions, i.e. between a user with an authorized card and a terminal not connected to a central account system, have the advantage that the vendor does not have to confirm each transaction. A card bearer merely inserts the card in a terminal to pay for a purchase and the authorized amount of the card is debited for the amount of the transaction. In off-line transactions, the vendor's responsibility can be reduced and the transaction process simplified, so that a transaction can be completely automated through the use of widely distributed user cards and automated terminals.

BSPR: One potential area of application of automated systems employing account or credit cards is in postage vending and metering machines. Purchases of postage and mailing transactions are made primarily in person with cash through tellers at post offices. Only limited types of postage stamps can be purchased from public vending machines. Most private postage metering machines have limited operational features and must have their metering devices removed periodically to a post office for refilling. The size and weight of the metering devices make them inconvenient to carry. Some metering systems can be refilled by a remote computer, but the caller must still phone the computer center and execute the operator's instructions on the postage meter manually.

DEPR: A card automated transaction system incorporating the particular features of the invention will now be described. It should be understood that although particular embodiments are described, the invention is not limited to such embodiments, but encompasses all modifications and variations which use the principles of the invention. For purposes of this description, the transaction terminal is selected to be a postage metering terminal for printing a postmark on a label, envelope, or waybill for articles to be mailed or shipped. However, it should be understood that the general principles of the invention have broad applicability to any type of transaction terminal in which a microprocessor card may be used. For example, the terminal may also be a cash or article dispensing machine or a printer which prints validation marks, coupons, receipts, tickets, inventory documents, etc.

DEPR: If the initial confirmation procedures are passed, the terminal MPU 30 next prompts the user to enter the information for a postage transaction. The user inputs on keypad 31 the amount of postage requested and, as a further option, the zip code of the sender's location and the date. As the information is supplied in sequence, i.e. "Amount", "Zip", and "Date", it is displayed on display 32 for confirmation. Alternatively, the date may be maintained by the terminal MPU 30, and displayed for user confirmation. When all the correct information has been entered, an edge of an envelope 51 to be mailed, or a label or mailing form to be attached to an item to be mailed, is inserted in a slot 50 on one side of the postage metering terminal 20. The movement of the label or envelope may be controlled to bring it in registration with the print head, as provided in conventional metering machines. The user then presses the "Print" key to initiate a postage printing transaction.

DEPR: A related embodiment of the invention is illustrated in FIG. 4 which employs a second card having postal rate data stored in memory to compute the correct postage automatically. A

terminal 20, similar to the one previously described, includes a second slot 91 for a "rate" card 90. The terminal has a slot 50 in which a postal label or envelope 51 is inserted for imprinting by the printer 40. For a parcel 52, the label 51 is printed then affixed to the parcel for mailing. A scale 53 may be connected to the terminal and MPU 30 to provide the weight of the envelope or parcel 52.

DEPR: The rate card memory contains a current listing of the rates for a particular carrier. For example, if the carrier is the U.S. Postal Services, the Post Office rates are listed according to zone classifications, weight, and class of mail. The special services card memory contains a program for filling out a standard waybill form in accordance with the information required by and with indicia identifying the mailing services of a particular carrier. For example, if the carrier is the U.S. Postal Service, the special services card can provide the programs for printing waybills for Express Mail, Certified Mail, Registered Mail, Insured Mail, etc.

DEPR: The program operation of the postal waybill terminal 20' is illustrated in block diagram form in FIG. 8, and a sample waybill form is shown in FIG. 9. Upon insertion of the user card 10 in slot 11, the user confirmation procedure previously described are carried out between the terminal MPU 30 and card MPU 60. If an unauthorized card or user is detected, the card is locked and the terminal operations are terminated. With a valid user card, the terminal program then checks if a rate card 90 and/or a special services card 100 is inserted and whether each is valid. Validity can be determined by the issue number of the card or by an indicated expiration date. If there is no rate card or special services card, the terminal MPU requests the user to input the desired postage and goes to the print key decision block 121. The terminal is then used to print a postmark or postage label as described previously. If a valid services card is present, the terminal program displays a menu of mailing or carrier services from the services card and requests the user to select a service.

DEPR: Based upon the origin and destination zip codes and weight, the postal amount, other service charges, and the total amount 144-146 are calculated and displayed under program control using the rate card if appropriate. The total transaction amount is saved. If the "Print" key is depressed, the terminal program then sends the "commence" signal to the card MPU and printer MPU to execute the handshake procedure and debiting and printing operations as previously described. If an "Auto" mode key of the terminal is depressed or the user elects to continue in response to a prompt, the terminal program returns to the beginning of the transaction loop indicated at block 113. The terminal operation is terminated if the transaction loop is not continued, or if the handshake procedure is not completed.

DOCUMENT-IDENTIFIER: US 4900903 A

TITLE: Automated transaction system with insertable cards for transferring account data

BSPR: By comparison, off-line transactions, i.e. between a user with an authorized card and a terminal not connected to a central account system, have the advantage that the vendor does not have to confirm each transaction. A card bearer merely inserts the card in a terminal to pay for a purchase and the authorized amount of the card is debited for the amount of the transaction. In off-line transactions, the vendor's responsibility can be reduced and the transaction process simplified, so that a transaction can be completely automated through the use of widely distributed user cards and automated terminals.

BSPR: One potential area of application of automated systems employing account or credit cards is in postage vending and metering machines. Purchases of postage and mailing transactions are made primarily in person with cash through tellers at post offices. Only limited types of postage stamps can be purchased from public vending machines. Most private postage metering machines have limited operational features and must have their metering devices removed periodically to a post office for refilling. The size and weight of the metering devices make them inconvenient to carry. Some metering systems can be refilled by a remote computer, but the caller must still phone the computer center and execute the operator's instructions on the postage meter manually.

DEPR: A card automated transaction system incorporating the particular features of the invention will now be described. It should be understood that although particular embodiments are described, the invention is not limited to such embodiments, but encompasses all modifications and variations which use the principles of the invention. For purposes of this description, the transaction terminal is selected to be a postage metering terminal for printing a postmark on a label, envelope, or waybill for articles to be mailed or shipped. However, it should be understood that the general principles of the invention have broad applicability to any type of transaction terminal in which a microprocessor card may be used. For example, the terminal may also be a cash or article dispensing machine or a printer which prints validation marks, coupons, receipts, tickets, inventory documents, etc.

DEPR: If the initial confirmation procedures are passed, the terminal MPU 30 next prompts the user to enter information for a postage transaction. The user inputs on keypad 31 the amount of postage requested and, as a further option, the zip code of the sender's location and the date. As the information is supplied in sequence, i.e. "Amount", "Zip", and "Date", it is displayed on display 32 for confirmation. Alternatively, the date may be maintained by the terminal MPU 30, and displayed for user confirmation. When all the correct information has been entered, an edge of an envelope 51 to be mailed, or a label or mailing form to be attached to an item to be mailed, is inserted in a slot 50 on one side of the postage metering terminal 20. The movement of the label or envelope may be controlled to bring it in registration with the print head, as provided in conventional metering machines. The user then presses the "Print" key to initiate a postage printing transaction.

DEPR: A related embodiment of the invention is illustrated in FIG. 4 which employs a second card having postal rate data stored in memory to compute the correct postage automatically. A

terminal 20, similar to the one previously described, includes a second slot 91 for a "rate" card 90. The terminal has a slot 50 in which a postal label or envelope 51 is inserted for imprinting by the printer 40. For a parcel 52, the label 51 is printed then affixed to the parcel for mailing. A scale 53 may be connected to the terminal and MPU 30 to provide the weight of the envelope or parcel 52.

DEPR: The rate card memory contains a current listing of the rates for a particular carrier. For example, if the carrier is the U.S. Postal Services, the Post Office rates are listed according to zone classifications, weight, and class of mail. The special services card memory contains a program for filling out a standard waybill form in accordance with the information required by and with indicia identifying the mailing services of a particular carrier. For example, if the carrier is the U.S. Postal Service, the special services card can provide the programs for printing waybills for Express Mail, Certified Mail, Registered Mail, Insured Mail, etc.

DEPR: The program operation of the postal waybill terminal 20' is illustrated in block diagram form in FIG. 8, and a sample waybill form is shown in FIG. 9. Upon insertion of the user card 10 in slot 11, the user confirmation procedures previously described are carried out between the terminal MPU 30 and card MPU 60. If an unauthorized card or user is detected, the card is locked and the terminal operations are terminated. With a valid user card, the terminal program then checks if a rate card 90 and/or a special services card 100 is inserted and whether each is valid. Validity can be determined by the issue number of the card or by an indicated expiration date. If there is no rate card or special services card, the terminal MPU requests the user to input the desired postage and goes to the print key decision block 121. The terminal is then used to print a postmark or postage label as described previously. If a valid services card is present, the terminal program displays a menu of mailing or carrier services from the services card and requests the user to select a service.

DEPR: Based upon the origin and destination zip codes and weight, the postal amount, other service charges, and the total amount 144-146 are calculated and displayed under program control using the rate card if appropriate. The total transaction amount is saved. If the "Print" key is depressed, the terminal program then sends the "commence" signal to the card MPU and printer MPU to execute the handshake procedure and debiting and printing operations as previously described. If an "Auto" mode key of the terminal is depressed or the user elects to continue in response to a prompt, the terminal program returns to the beginning of the transaction loop indicated at block 113. The terminal operation is terminated if the transaction loop is not continued, or if the handshake procedure is not completed.

DOCUMENT-IDENTIFIER: US 4940887 A

TITLE: Automatic mail handling and postage vending machine

ABPL: A computerized handling device automatically processes mail items. The device includes a housing, a coin identifying and changing device, and a microcomputer controller, and has an inlet for mail items. Also included are mechanisms for causing the return of a mail item to a user, for conveying a mail item to a weighing station, to enable a user to select a desired mail classification, for calculating the appropriate postage for a mail item, for indicating to a user the weight of and postage due on a mail item, for receiving payment from a user, for verifying the payment against the postage due on a mail item, for automatic stamping a postage marking on the mail item at a postage marking station and for sorting mail items in accordance with their classification. The device is constructed so that varied weight and classifications of mail items can be processed through an interactive action with the user.

BSPR: Traditionally, for sending mail items, it is necessary either to buy postage stamps to stick on the mail items or to arrange for the mail to be weighed by service personnel in the post office and then buy the exact amount of postage stamps (or postage labels) to stick on the mail items before mailing them. Both methods have disadvantages. For example, with the first method, mail can be sent with insufficient postage, and it is necessary to purchase postage stamps and physically stick them onto mail items. In the second case, much of the sender's time tends to be wasted.

BSPR: After collecting mail items from mail boxes, mailmen are required to handle sophisticated jobs such as picking out overweight mail items, stamp cancellation and sorting etc. These jobs are often performed manually.

BSPR: A known self-service post counter accepts coins and franked mail automatically without the need to stick on postage stamps. However, existing self-service post counters are unable to calculate postage and are only suitable for regular and express mail. Recently, it has been proposed to connect an electronic weigher and a postage marking machine having a microcomputer to a self-service post counter. Although the resulting machine provides the functions of weighing, calculating postage, and recording, it is still necessary for dating to be done by hand and the whole system must be operated by manual labour. Furthermore, it is not possible to simplify the mailing procedure. Thus, the disadvantages of wasted time and labour and the possibility of human error still exist.

BSPR: In accordance with the invention, there is provided an automatic mail handling device including a housing, a coin identifying and changing device, and a microcomputer controller, and having an inlet for mail items, means, for example a button, operable by the user for causing the return of a mail item to a user, means for conveying a mail item to a weighing station, means to enable a user to select a desired mail classification, means for calculating the appropriate postage for a mail item in dependence upon the weight and mail classification thereof, indicating means for indicating to a user the weight of and postage due on a mail item, means, for example, a coin, banknote, or credit card slot, for receiving a payment token from a user, means for verifying the payment token against the postage due on a mail item, means for transporting mail items automatically on verification of the payment, means for sorting mail items in accordance with their

classification and means for enabling the output from the device of the total of numbers of items and postage amounts for each mail classification.

DEPR: FIG. 5 illustrates a preferred embodiment of the automatic postage marking machine incorporated in the device according to the invention. The marking machine includes a main driving motor 254 which is located at the lower part of said automatic postage marking machine and is used to drive rollers 255 for moving mail items. The operation is similar to that of the conveying mechanism 242, 243, described above. A roller 251 is located at the middle part of said automatic postage marking machine and is provided with two sets of character wheels 252. A first one of these two sets of character wheels 252 is rotated by stepping motor 253. The second set of character wheels is used for printing the date, both character wheels for printing year and month are provided with one row, and character wheels for printing days have two rows of character wheels, and also they are rotated by a date stepping motor 253 respectively. Outer surfaces on the rollers 251 can carry postage marks, date, stamp figures and advertising logos in accordance with the instruction of said microcomputer controller.

DEPR: The above operations are carried out sequentially and swiftly. The mail items move continuously into the mail sorting section 27 (FIG. 2). The mail sorting section operates to sort mail entering the machine. The solenoid 271 lifts the swing plate 272 so that mail can move into different mail boxes 28-30. At this moment, the weight and postage indication on the face panel is removed and the "working" indicating light is extinguished, to indicate that the process is finished.

DEPR: At least in its preferred embodiment, this invention provides a microcomputerized automatic mail item handling device which is able to receive mail, weigh mail, calculate and receive postage, change, stampmark, sort mail, classify and count mail, memorize and record postage income, and so on. By microcomputer control, which can automatically carry out all operations in the mail items handling device within about ten seconds, advantages such as time saving, labour saving and accuracy become feasible.

DEPR: In the device illustrated, an electronic weighing machine is used to weigh mail and to calculate the postage automatically so that problems of inadequate postage caused by overweight mail or senders' misunderstanding suitable postage may be avoided. It is also easy to revise the computer program to adapt to new postage rates.

DEPR: Furthermore, postage and date stamping are completely controlled by the microcomputer so that it can be operated automatically and it is not necessary to employ postage stamps or postage marking labels by hand.

CLPR: 3. A device as claimed in claim 1, wherein the payment receiving means comprises means for receiving a magnetically coded card.

CLPR: 9. A device as claimed in claim 1, wherein the means for postage marking comprises a plurality of sets of character wheels for printing postage marks, date, stamp figures and advertising logos in accordance with an instruction of said microcomputer controller.

CLPV: an indicating means for indicating to the user the weight of and postage due for the mail item, said indicating means being mounted on said housing;

CLPV: a second conveying means for conveying the mail item from said weighing means to said postage marking means, said second conveying means being located adjacent to said postage marking means and being operatively connected to said microcomputer;

CLPV: an automatic postage marking mechanism, operatively connected to said microprocessor controller and located adjacent to said transmission and weighing mechanism such that mail exiting from said transmission and weighing mechanism enters said postage marking mechanism;

CLPV: a payment receiving means operatively connected to said microprocessor wherein when an item of mail is inserted in said inlet/outlet, said microprocessor activates said transmission and weighing mechanism, said item of mail is weighed, and postage is computed by the microprocessor controller;

CLPV: an automatic postage marking mechanism, operatively connected to said microprocessor controller and located adjacent to said transmission and weighing in mechanism such that mail exiting from said transmission and weighing mechanism enters said postage marking mechanism;

CLPV: a payment receiving means operatively connected to said microprocessor wherein when an item of mail is inserted in said inlet/outlet, said microprocessor activates said transmission and weighing mechanism, said item of mail is weighed, and postage is computed by the microprocessor controller;

DOCUMENT-IDENTIFIER: US 5025386 A

TITLE: Automated mail collecting and telecommunication machine II

BSPR: The present invention relates to electronic postage meters of the type having a microprocessor for controlling envelope stamping and the accounting for such stamping, and for the efficient and economical franking of letters. It also relates to motorized weighing conveyors mounted on an electronic weighing device and to electronic scales with the ability to print bar code labels. It further relates to printers able to print data entered on an alphanumerical keyboard in the form of laser readable bar code and to vending machines with the ability to accept payment in coins, bills, and debit, credit, or IC cards. It also relates to coin, and debit, or credit card operated pay -phones, various devices used for the listing of data from some external database, and to telex machines.

BSPR: An object of the present invention is to provide an automated machine for the collection and stamping of mail. Electronic postage metering and stamping machines will be discussed first. Conventional postage metering and stamping machines have the ability to electronically weigh envelopes, package mailings, and to stamp the postage on an envelope. They are operated by an employee and the postage is determined according to the envelope's weight and its destination. The postage can either be debited from the machine's previously charged non-volatile memory or paid in cash to the employee when the machine is used in postal offices. These machines do not significantly affect the further sorting and tracking process.

BSPR: The present invention enables the electronic weighing of a mailing to be performed automatically and securely, without the possibility for a customer to influence the weighing, and the postage is automatically calculated according to the mailing weight data and the destination data entered on the keyboard. Therefore, according to the process of the present invention, there is no possibility for a higher or lower postage being calculated and since each mailing can be returned to the customer in the case of insufficient postage paid or data entered, no further check as to whether the postage was paid is necessary.

BSPR: Yet another object of the present invention is to provide a pay-phone device for public use. First, conventional pay-phones will be discussed. Presently, pay-phones for public use are designed to accept payment means, such as coins, and debit or credit cards, and most of them are able to accept only one out of the three said means. It is an object of the present invention to provide a device wherein coins, bills, debit cards, different kinds of credit cards, and IC cards can be used to pay the charge by using the same payment accepting means as is used for the mail collection purpose. According to the present invention, the same displaying and processing means are used and this enables the device to be economical while giving the customer all possible options of mode of payment.

BSPR: In order to achieve the objects of the present invention, there are provided means for accepting payment, either in coins, bills, or debit, credit, or IC cards, means for entering any required data, means for displaying said data and the instructions for the use of the machine during the different phases of the process, means for printing, dispensing, processing, and storing the required data, wherein all said means are used for all of the machine's various functions. There

are also provided means for the inserting, driving, pressing, bar code printing, and the storing of the mailing, used for the machine's mail collection purpose which is one object of the present invention.

DEPR: If the charge is to be paid by a magnetic card, the machine continues the procedure as shown in FIG. 16. If the existing credit on the debit card is not sufficient, an additional amount can be inserted in cash or paid by a new debit card after the first card is debited to zero. If, however, the request is not fulfilled, the machine continues the above described returning procedure as shown in FIG. 18. For payment with a credit or IC card, as shown in FIG. 16, the data about the card and any corresponding charge is loaded into temporary memory unit 34 in order to be stored and forwarded for the purposes of later billing.

DEPR: Another function of the present invention is as a pay-phone device wherein the same previously described payment accepting and displaying means are used. Referring now to FIG. 1, there is shown a phone handle 10 hung on machine housing 1, comprising a phone unit connected to a phone line through the housing 1 and including a dialing keyboard inside its middle section. Referring now to FIG. 11, if there is no minimum amount required for using the machine as a pay-phone device, as soon as any amount is inserted, the customer can pick up the phone handle 10 and get a dial tone. For all other payment means, the card validity checking procedure corresponds to the one previously described for the machine's mail collection function and as shown in FIGS. 12 and 13.

DEPR: After the desired number is connected and if the payment was made by cash or through a debit card, the remaining credit is permanently displayed and the line remains connected for as long as the credit equals zero, as shown in FIG. 20. If the payment was made by a credit or IC card, the accumulated charge is permanently displayed and the line can be disconnected if a certain given limit is reached. Referring now to FIG. 20, if the line is disconnected by the customer before the credit equals zero or the limit is not reached, the customer has the opportunity to enter directions for a "follow on" procedure before any change from escrow or a card is returned, as shown in FIG. 22, after which the machine continues the procedure as shown in FIG. 23.

DEPR: Referring again to FIG. 21, according to the length of the entered message and its destination, the charge is calculated and displayed for the customer together with a request for an additional amount of payment if the amount in escrow is not sufficient to cover the charge. In the case of a debit card payment, a warning is also displayed and if the request is not fulfilled following the displayed warning, the message is erased and the inserted amount or the card are returned according to the procedure shown in FIG. 22. If the payment is correctly made, instructions on how to enter an execute order are displayed as shown in FIG. 21 and upon this order, the machine automatically dials the desired number and sends the entered message.

DEPR: In accordance with the present invention, the data storing or forwarding procedures and the change or card returning procedures are identical, regardless of the machine's function, to those shown in FIGS. 22 and 23. According to the process of the present invention, in any case when payment is made by a credit or IC card, a receipt for charges paid is printed and dispensed to customer. Also according to the process of the present invention, and regardless of the

machine's function or its stage in the procedures, a customer can always correct any entered data immediately by moving the pointer over the displayed text.

CLPV: determining means including said computer means and coupled to said data entry means and to said weighing means for determining the required postage for said item to be mailed;

CLPV: means including said computer means and coupled to said display means, to said data entry means, and to said determining means for detecting the presence of debit, credit, or IC cards, for reading said cards, for validating said cards, for charging said cards, and for returning said cards.

CLPV: determining means including said computer means and coupled to said data entry means and to said weighing means for determining the required postage for said item to be mailed;

DOCUMENT-IDENTIFIER: US 5065000 A

TITLE: Automated electronic postage meter having a direct access bar code printer

ABPL: The present invention discloses an automated electronically controlled postage meter including a mail weighting means, an alphanumerical keyboard, a direct access bar code thermal transfer printer, a magnetic and IC card reader/writer, a liquid crystal display, and a double-station thermal and dot matrix printer. In accordance with the present invention, a configuration mounted on an electronic weighting device allows for the weighing of postcards, envelopes, and packages. A magnetic and IC card reader/writer is provided in order to allow for payment by debit, credit, or IC cards in addition to payment by cash or check to an employee. An alphanumerical keyboard is provided in order to allow for the entry of alphanumerical data regarding the item to be mailed, which data is further converted and printed on the item to be mailed in the form of laser readable bar code. If direct printing is unsuitable, the bar code can be printed on a self-adhesive label to be stuck on the item to be mailed.

BSPR: Conventional postage meters have the ability to determine the weight of a mailing, calculate the postage charge by an electronic means, and print this charge on the mailing. The payment for such a charge is then either debited from a previously charged memory or paid in cash to an employee who operates the machine in a postal office. It is generally known that these devices are used for the efficient and economical stamping of postcards, letters, and packages but that they can not significantly improve the automation of the further sorting and tracking process because such mailings must go through an additional postage checking procedure. Even in the best of solutions, these mailings can be sorted only by comparatively slow scanning procedures performed by photosensitive means with a comparatively low first read rate.

BSPR: Hence, it is an object of the present invention to provide a device with the ability to weigh a mailing by electronic means and, based on its destination and other data entered on an alphanumerical keyboard, automatically print any required data in the form of laser readable bar code on the mailing or on a self-adhesive label to be stuck on the mailing for the purpose of enabling a completely automatic sorting and tracking process. When using any of the bar code types which are readable by a multi-pass laser scanning means installed on both sides of a mailing driving conveyor found in sorting hubs, an extremely fast and completely automatic sorting and tracking process with an almost perfect first read rate is achievable.

BSPR: Another object of the present invention is to provide a device which is able to accept payment by a variety of means including by cash or check paid to an employee, or by debit cards, various types of credit cards, or IC cards. In accordance with the present invention, all of these payment means can be used, thereby giving the invention a significant advantage, particularly in countries where the postal and telephone systems are owned by the same company and where, therefore, the postage can be debited from a pay-phone debit card or be automatically charged to a customer's telephone bill. When used in corporate mail rooms, in addition to printing a bar code on the outgoing mail, the present invention can be used for printing a bar code on the internal mail so that it too can be economically and automatically sorted.

BSPR: An object of the present invention is to provide an electronically controlled postage meter

which automatically prints the zip code, country code, special request code, and identification code directly on a postcard, letter, or package, referred to as "the" or "a" "mailing" in this text, in the form of laser readable bar code. The physical configuration of the present invention enables almost all mailings to be weighed and labeled by an automated electronic means but if this is unsuitable, a self-adhesive bar code label can be printed and manually stuck on a mailing .

BSPR: In accordance with the present invention, an inserted mailing is automatically weighed by an electronic means and after its destination is entered on a keyboard, a charge is automatically calculated according to instructions from the machine's memory. The charge is then displayed both to the employee and to the customer and upon a confirmation that the charge has been paid, the mailing pressing, bar code printing, and mailing dispensing procedures occur. According to individual requirements, the bar code printed on a mailing or on a self-adhesive label may comprise data about the mailing's destination zip code, the country of destination, and any special requests with any other identification code which is required for the purpose of tracking a mailing with a particular special request.

BSPR: Another object of the present invention is to provide a device able to accept different payment means. The invention therefore provides a magnetic and IC card reader/writer for accepting payment by a debit card, various types of credit cards, or IC cards in addition to accepting payment by cash or check through an employee. In order to make the mail accepting procedure as fast as possible, the machine also has the ability to perform a "follow on" procedure if the same customer wants to mail more than one item. The features and advantages of the present invention will become apparent from the following brief description of the drawings and the detailed description of the invention.

DRPR: FIG. 7 is an example of the bar code to be printed on a mailing or on a self-adhesive label having a zip code and a country code printed in the first line, an identification code in the second line, and a special request code in the third line;

DEPR: Referring again to FIG. 1, the double-station printer 7 comprise two printing heads One printing head is of a dot matrix type used to print customer receipts or for totalling data for an employee upon the entry of specific instructions. The second printing head is of a thermal type used to print data corresponding to the mailing destination in the form of laser readable bar code, as shown in FIG. 7, on a thermal sensitive self-adhesive label. The disc drive unit 9 built into the machine housing 1 is used for storing data about the machine's status for later use in case the machine is installed as an independent unit. When the machine is connected to some external database, all corresponding data can be automatically transferred to such a database for further use. Magnetic and IC card reader/writer 6 built into the housing 1 is able to read and rewrite data on a debit card magnetic stripe and to read data from credit and IC cards for the purpose of accepting payment .

DEPR: The employee then reads the address on the mailing and manually enters the data regarding the mailing's zip code, country of destination, and any special requests on the machine's alphanumerical keyboard 5. Referring again to FIG. 9, the total postage charge is calculated based on the weight of the mailing, its destination, any special request data entered on the keyboard, and

on any data stored in the machine's memory. The charge is then displayed, both on LCD 8 for the employee and on LCD 10 for the customer. Even if the mailing has to be weighed on top surface 2, the data entry, charge calculation, and display procedure is the same as the one described above.

DEPR: As shown in FIG. 10, if the payment is made by cash or check, the employee collects the charged amount and confirms the payment on keyboard 5 thereby enabling the machine to continue its process. If the payment is made by a debit card, the employee inserts the card into the machine's magnetic and IC card reader/writer 6 where the data about the card's validity and credit standing is read and then displayed on both LCDs 8 and 10. The calculated charge is then debited and a new balance is rewritten on the card's magnetic stripe for later use. If the existing credit is not sufficient to cover the postage charge, the card can be debited to zero and the remaining amount paid by a new debit card or in cash. After the charge is debited from the card and if a "follow on" instruction is not entered by the employee, a new balance is displayed and the card is returned. If the card proves to be invalid, a warning is displayed and the invalid card is automatically returned.

DEPR: If payment is made by a credit card without a PIN, the card is inserted into the reader/writer 6 where its validity is checked and, if proven valid, the card number and the corresponding charge are loaded into the machine's memory to be stored or transferred to some external database for the purpose of later billing. If the card proves to be invalid, a warning is displayed and the card is automatically returned.

DEPR: If payment is made by a credit card with a PIN or an IC card, the card is inserted into the reader/writer 6 and the customer gets two chances to enter the correct PIN on the small alphanumerical keyboard, not shown on the drawings, located in front of him and not seen by the employee. If the card proves to be valid and the correct PIN is entered, the machine's further procedure corresponds to the one described above.

DEPR: Once payment is confirmed by the employee on keyboard 5 or by the card reader/writer 6, the machine's further procedure is performed according to the instructions entered by the employee on keyboard 5 and in accordance with one of the possible weighing scenarios.

DEPR: The present invention can also be used in corporate mail rooms, either for outgoing or internal mail, where the destination data and special request data are printed in the form of a bar code by an identical procedure to the one described above but one including slightly different payment method. In this case, the payment has to be made either by a debit card issued by the corporate owner, which is permanently used until the encoded credit expires, or by a credit card where the data about the card and any corresponding charge is stored or forwarded for the purpose of later billing. If payment is made by an IC card, which is yet another possibility, the charge can be accumulated in the machine's memory and, at the end of a working day, forwarded to be automatically debited from a customer's bank account. Company employees could also use the machine for sending their own outgoing mail by paying the charge with a debit, credit, or IC card. The machine could also be used for printing a bar code on internal company mail to enable the sorting of such mail through a "hub and spoke" system wherein a predetermined internal bar code

could be identified by the system and where such a code would be printed free of charge.

CLPR: 20. The postage meter of claim 17, further comprising an electronic operating external payment accepting means comprising at least one of a debit card or an IC card.

CLPV: means coupled to said computer for detecting the presence of debit, credit, or IC cards, for reading said cards, for validating said cards, for charging said cards, and for returning said cards.

CLPV: the computer comprising a CPU for calculating the postage due based upon the signals from the electronic scale and information from the alphanumeric keyboard, and displaying the postage due on both the first electronic display and the second electronic display;

CLPV: a double station printer comprising a first printing head for printing an alphanumeric laser readable bar code including both letters and numbers, indicative of the destination and method of mailing of the item to be mailed on a separate label and a second printing head for printing a record of the transaction, the printer being operable only after the computer receives the signal verifying external payment for postage due.

DOCUMENT-IDENTIFIER: US 5233532 A
TITLE: System for mailing and collecting items

ABPL: A system for accepting and storing items for subsequent pickup by a commercial carrier may include a storage area which is defined by an outer housing, and a customer interface area that includes a weighing unit and a unit, such as a magnetic card reader, for accepting payment from a customer. The system may also include a control system that accepts address information from the customer through a key pad, and then instructs a printer to print an address label for the item. The system includes safeguards which prevent unauthorized access to the storage area, and will not provide a receipt to the customer until internal sensors verify deposit of the item. A manifest printer may also be provided for the benefit of the commercial carriers who service the system, to print out a summary of the transactions that pertain to each carrier.

BSPR: In order to achieve the above and other objects of the invention, a system for accepting and storing items for subsequent pick-up by a commercial carrier according to the invention includes structure for weighing an item which a customer may intend to ship; structure for inputting information relating to the destination of the item from a customer; control structure for calculating a shipment fee for the item, the control structure being in communication with said weighing structure and said information inputting structure; structure for accepting identification information relating to eventual payment from the customer; a storage area defined by an outer housing; structure for depositing the item into the storage area; and structure for providing service access to the storage area so as to enable periodic removal of items stored therein, whereby one or more commercial carriers can receive items for shipment without having personnel continuously present.

DEPR: First, a customer approaches the customer interface area 16, and lays whatever personal effects he or she may have upon the platform 20. The customer then measures the dimensions of the item being shipped on the indicia which is provided on or about platform 20. The video display terminal or screen 24 at this point and displays a prompt which instructs the customer to place the envelope, parcel or package on electronic scale 22 and instructs the customer to push a start button on key pad 28 to initiate a deposit. Once control system 100 receives input from electronic scale 22 and the start button, it evaluates the input to check whether the package, parcel or envelope exceeds a pre-determined weight maximum, which preferably is approximately 70 pounds. If the package exceeds the predetermined maximum, control system 100 displays a message on video display terminal 24 to the effect that the system cannot accept packages which exceed the predetermined maximum weight. If the package is within the predetermined weight maximum, control system 100 displays a prompt on video display terminal 24 which instructs the customer to pass a magnetic credit or debit card through magnetic card reader 30. Preferably, system 10 is compatible with most commercial bank cards, as well as any proprietary cards that its commercial client delivery services may issue. After the customer has passed a magnetic card through reader 30, control system 100 evaluates the information received from card reader 30 and determines whether or not the card information meets certain predetermined characteristics. Those characteristics may be the type of card, the expiration date, and whether the card is listed in the CPU memory as a "bad" card. If the information does not meet these criteria, the control system 100 displays a prompt on terminal 24 to pass the card through reader 30 a second time. If the card

information is approved by system 100, system 100 will display a prompt on terminal 24 which asks for a phone number where the customer can normally be reached. After the customer enters a phone number through key pad 28, system 100 evaluates the number to see whether it meets predetermined criteria, such as whether the number is either seven or ten digits. If it does not, system 100 displays a second prompt on terminal 24 which asks the customer to reenter the number. If the number meets the selected criteria, system 100 displays a screen which requests the customer to enter the desired zip code of the item which is to be mailed. The customer then enters the destination zip code through key pad 28, and the system 100 evaluates the code against certain criteria, such as whether exactly five digits have been entered. If the criteria are not met, a screen is displayed which instructs the customer to re-enter the zip code. If the zip code that is entered by the customer meets the pre-determined criteria, system 100 displays a screen on terminal 24 which instructs the customer to enter the value of the item that is being deposited. The customer then enters the value of the item through key pad 28. This information is evaluated by system 100 and compared with certain criteria, such as whether it exceeds a predetermined maximum. If the information does not meet the criteria, the system displays a screen on terminal 24 which instructs the customer to reenter the evaluation information. If the entered value meets the criteria, system 100 will display a screen which instructs the customer to enter the size of the package. Once the customer enters the size of the package through key pad 28, the system will automatically re-weigh the package without informing the customer. If control system 100 determines that the weight of the package has changed since the original weighing, it will display a screen on terminal 24 which warns the customer against touching the package. At that point, control system 100 again re-weights the package. Once a consistent weight reading is achieved, or if the package weight has remained unchanged since the original reading, system 100 will automatically calculate the charges that are to be applied to the credit or debit card account and will then display a screen on terminal 24 which requests the customer to enter the preferred mode of transportation for the item. At this point, a menu of the fees different services would charge may appear, and the customer can specify which commercial delivery service he or she would like to use by entering the appropriate information through key pad 28. Once this information is received by system 100, system 100 will display a screen on terminal 24 which asks the customer whether the customer would like to change any previous entries. If the customer responds through key pad 28 in the affirmative, the system 100 will display a screen on terminal 24 which allows the customer to select which input the customer would like to change, and, upon entry of the appropriate information by the customer, will allow the customer to change previously-input data.

DEPR: If the customer indicates that all of the previously-input information is still valid, or if all incorrect information has been re-entered correctly, control system 100 will actuate printer 26 to print a mailing label for the package. Preferably, printer 26 is equipped with a peel-type laminated label material which can be peeled off to expose an adhesive backing. Once the label is printed, the customer peels the back off of the label, and places the label on the item that is to be mailed. At this point, control system 100 displays a screen on terminal 24 which instructs the customer to take the label from the printer, to write the mailing address onto the label, to place the label on the package, and to place the envelope or package in the appropriate door. If, because of the previously-input information, control system 100 determines that the item to be mailed is an envelope, it instructs the customer to place the envelope int the dump drop 92. At this point, control system 100 will take no further action until it receives input from the third photoelectric

sensor 116 that an envelope has indeed travelled down inclined chute 94 and into the collection space 96.

CLPR: 6. A system according to claim 1, further comprising means responsive to said control means for printing a shipping label for the item prior to when the item is placed into said depositing means.

CLPR: 8. A system according to claim 1, wherein said means for accepting identification information relating to payment comprises a card reader.

CLPV: control means for calculating a shipment fee for the item, said control means being in communication with said weighing means and said information inputting means;

DOCUMENT-IDENTIFIER: US 5272640 A

TITLE: Automatic mail-processing device with full functions

ABPL: An automatic mail-processing device with full functions, which can be operated by only one postal clerk, and wherein by means of a microprocessor, all kinds of delivery types and additional service types such as registered special, insured, attested and express types of various individual letters or bulk mailings are included and functions of automatical weighing, postage calculation, charging, postage stamping (or postage note stamping), postage receipt printing, register receipt printing, and regular daily, weekly or monthly income list printing are performed.

BSPR: The present invention relates to an automatic mail-processing device with full functions, and more particularly to an automatic mail-processing device which can be operated by only one postal clerk to perform all delivery types and additional service types of all kinds of mails, and the functions of which include automatical weighing, postage calculation, charging, postage stamping, receipt printing, register receipt printing and regular daily, weekly, monthly income listing whereby the postal business can be practiced systematically, automatically, accurately and highly efficiently.

BSPR: The above-mentioned various procedures are managed through respective counters wherein the weighing is practiced according to different standards, and the postage is calculated according to complex charge list, and therefore the equipments needed in these procedures are quite complicated and not so easily maintained. Moreover, the numerous procedures waste enormous labor and are apt to cause an uneven work distribution and low working efficiency and thereby errors occur frequently. Particularly the mailer always wastes a lot of time when waiting.

BSPR: Furthermore, the postage stamps used in general post offices are transmitted to the postal counter after the following sequential complex procedures: design, printing, storing, delivery and receiving. These procedures are performed at quite high expense. Moreover, when mailing a mail, the mailer must go through weighing, postage calculation, buying the stamp, attaching the stamp to the mail, and then dropping the mail into the mail box, etc. The dispatched mail must thereafter be checked for overweight, postage due, and then stamped, sorted, etc. Considerable large work loading results therefrom. However, the aforesaid procedures have been adopted long since. Although the post administrations of various countries have tried to improve the defective operation, but nothing innovative is developed.

DEPR: Referring to FIG. 1A, a first embodiment of the present automatic mail processing system includes a microprocessor 10, a display device 720, a printer 780, a keyboard system 70, an auto-conveying device 30 and a postage stamp device 25, wherein the microprocessor having a micro processor main control unit includes a display I/F (interface) circuit 11 controlling the display device 720, a printer I/F CKT (circuit) 14 commanding the printer 780 to work, a key board system I/F CKT 18 capable of receiving commands from key board system 70 and communicating therewith, an auto-conveying device I/F CKT 19 used to control auto-conveying device 30 and receive signals therefrom and communicate therewith, a parallel bus 22 related to and communicated with the auto-conveying device I/F CKT 19 and a parallel bus I/F CKT 22A, a postage stamp device I/F CKT 20 used to control auto-postage stamp device 25 and receive signals

therefrom and communicate therewith, and a parallel bus 21 related to and communicated with the postage stamp device I/F CKT 20 and a parallel bus I/F CKT 21A. As shown in FIG. 1A, the postage stamp device 25 includes a postage stamp device control SW (switch) 25A, a postage stamp device control unit 25B, a sensor CKT 25C, a sensor I/F CKT 25E, a sensor S5, S6, a driver CKT 25D, a driver I/F CKT 25F and a driver 251, 253, 256, etc. While the auto-conveying device 30 includes an auto-conveying device control SW 30A, an auto-conveying device control unit 30B, a sensor CKT 30C, a sensor I/F CKT 30E, a sensors S1-S4, a driver CKT 30D, a driver I/F CKT 30F and a driver 300, wherein the auto-postage stamp device 25 transmits the signals obtained by sensors S5, S6 through the sensor I/F CKT 25E, sensor CKT 25C to auto-postage stamp device control unit 25B, auto-postage stamp device control SW 25A, and then the signals are converted into effective commands via the programs of the microprocessor and sent to the driver CKT 25D, driver I/F CKT 25F to command the drivers 251, 253, 256 to operate in accordance with the commands. While the auto-conveying device 30 also transmits the signals obtained by sensors S1-S4 through the sensor I/F CKT 30E, sensor CKT 30C to the auto-conveying device control unit 30B, auto-conveying device control SW 30A, and then the signals are converted into effective commands via the programs of the microprocessor and sent to the driver CKT 30D and driver I/F CKT 30F to command the driver 300 to operate according to the command.

DEPR: A third embodiment of the present invention is shown in FIG. 1C. A postage label supply device 60 and a postage label supply device I/F CKT 16 adapted to command the postage label supply device 60 and receive signals therefrom and communicate therewith are added to the second embodiment to form the third embodiment.

DEPR: In case of individual standard mail, the procedure will go directly from F9 to F11. After the postage payment procedure F12, all commands are checked for correction, and if so, the actuating key is pressed in procedure F13. At this time, the microprocessor will command the postage stamp device to automatically set the numeral wheels thereof into proper date and postage in procedure F16. When a positive signal is given in standard mail procedure F17, the mail is conveyed to the printing position in mail conveying procedure F18. In procedure F19, the postage is imprinted on the mail. (The mails can be sorted if necessary. This procedure is not shown in FIG. 2B.) Thereafter, the postage stamp device is zeroed in procedure F20. The printer will then print a receipt and certificate in procedures F21 and F22, respectively, and then the above relevant data are stored in procedure F23. Simultaneously, the receipt, money card and other documents are given to the customer in procedure F24 and the whole procedure ends in procedure F25.

DEPR: According to the above procedure, in case of a non standard mail, the procedure will go from F6 to a second weighing scale procedure F71 and relevant commands are input according to identical manner in procedure F81. In procedure F9, the postage is calculated by microprocessor and the procedure goes from F10 to F17. Because of non standard 2[~] mail, the microprocessor 10 will command the postage position for imprinting 12[~] from procedure F180 to procedure F190. The following procedure is the same procedure as the above-mentioned one and the description thereof is therefore omitted.

DEPR: To easily understand the postal material-managing process of the present invention, two

main portions thereof, i.e., automatic weighing device for conveyed postal material and automatic postage stamp device are described in detail as follows:

DEPR: Turning now to FIGS. 6 to 9, an embodiment of the postage stamp device 25 of this invention is shown. The printer 25 includes a conveying system and a postmark printing system wherein the conveying system is arranged above and below a conveying reference surface A1, including a main driving means of the conveying system, for example, a first stepper motor 251, driving a first roller 2512 and a second roller 2513 through timing belts 2510 and 2511 respectively, as shown in FIG. 6. Referring to FIG. 6, there are installed an idle roller 2514 with a stretching spring above the first roller 2512 and an idle roller 2515 above the second roller 2513. The post mark printing system is shown in FIGS. 6 and 7, including a main shaft driving means 256 e.g. a second stepper motor 256, pulleys 2561, 2563, a timing belt 2562, a main shaft 2505, on which a plurality of second racks 2504 are slidably mounted, a plurality of stepper motors 253A, . . . 253H for driving their respective numeral wheels 271, 272 through their respective related gears means 253A4 . . . 253H4, ink-printing means 40, a printing head 27, and an idle roller 2516 thereof (see FIGS. 6, to 9). The printing head 27, as seen in FIG. 8, includes a postmark wheel means 271 for imprinting postage, a postmark wheel means 272 for imprinting accepted date, a graphical postmark means 273 for imprinting advertising marks.

DEPR: Please refer to FIGS. 10 to 12, which illustrate the appearance of the present invention. The front portion of the main body H of the automatic mail-processing system is faced to the postal clerks, while the rear portion thereof is faced to the customers normally. A guide rail 309 for bulk standard mail is disposed on the left front portion of the main body H. On the right side of the guide rail 309 is disposed a mechanism center M. Above the mechanism center M is located a first display device 720, and after the center M is located a second display device 720A. The mechanism center M includes the automatic conveying device 30, the first weighing scale 500 and settable automatic postage stamp device 25. On the right side of the mechanism center is disposed a collecting tank 21 for collecting processed postage label and bulk mails. Adjacent to the tank 21 is disposed the second weighing scale 500A. The weighing scales of the present invention are electronic weighing scales applying load cells as weight sensors. The second weight values are converted and displayed on the first and second display devices 720, 720A via the weighing scale I/F CKT 12 and microporcessor 10. To reach the object of communication between postal clerks and customers, the two display devices 720, 720A are disposed respectively on the front and back sides of the mechanism center to show the data about mail weight, postage calculation, postage payment, and other inner state indications (such as insufficient ink, lack of postage label, over weight, etc.) on both the first and second display devices 720, 720A.

DEPR: Please now refer to FIG. 13, which illustrates the mechanism center M of the present invention. The mechanism center M essentially includes the automatic weighing device 23 and automatic postage stamp device 25, which have been described in preceding paragraph.

DEPR: As shown in FIG. 13, this embodiment of the present invention is generally identical to the embodiment shown in FIGS. 3 to 9. However, the first conveying means 301A, first idle wheel 310 thereof, first pulley 302 and second pulley 304 are omitted in this embodiment, and a direct driving manner is applied therein. While in the automatic postage stamp device, the

second roller 2513 and second idle roller 2515 are omitted, and the driver 300 of the automatic weighing device is alternatively located between the second and third rollers 301B, 301C to simultaneously drive the rollers 2514, 2512 for simplifying the driving mechanism. Additionally, a gate 308 is disposed at entrance 309 of the mechanism center M to prevent processed mails from interference of successive mails. The ink device 40 of the preceding embodiment is of pump type, but is of roller type in this embodiment. Furthermore, in this embodiment, to apply postage label to the non standard mail instead of direct postage stamp, a blank postage label supplying device 60 is disposed between the idle wheel 2516 and first roller 2512, and a movable guider 61 and brush member 62 are arranged at the exit of the printing head 27. Below the brush member 62 is disposed a water tank 63. When applying water to the back of postage label for attaching the same to the mail, the movable guider 61 can be pressed down manually (as shown in FIG. 13) or be controlled electromagnetically and synchronized with supplying device 60 whereby the postage label with postage stamp can be guided through a guide channel 64 when the guider 61 is pressed downward to be brushed by the brush member 62 and pass through an exit 65 to go into a collecting tank 21 as mentioned above.

DEPR: If a mailer wants to send an insured express air mail with standard envelope to France, when the mailer passes the mail to a postal clerk, as shown in FIGS. 10 and 15, the clerk can depress the standard mail key 7401 on the international key board 740, the air mail key 7405 thereof, mail key 7408, express key 7419, insure key 7420, and Europe/Africa/Middle South America key 7424 thereof, and then depress actuating key 770 to complete the command input. At this time, the mail L will be automatically conveyed to the weighing area by the automatic conveying device 30 (see FIGS. 4, 5, and 13). When the mail L reaches the sensor S4 located at weighing area, the movable stand 200 of the automatic weighing device 23 descends under commands from microprocessor 10 to set the mail L on the weighing plate 501 of the first weighing scale 500 (see FIG. 5). The mail is thereafter weighed by the first weighing scale 500 without contacting any other portion. After weighing, the movable stand 200 of the weighing device 23 automatically returns to its home position to lift the mail L to original level (as shown in FIG. 4). In the meanwhile, the postage, being accurately calculated by microprocessor, is displayed on display device 720, 720A to show the mailer the proper postage. If the mailer wants to pay the postage with money card, he can insert the money card into card reader/writer 711. The balance is then displayed, and the postage is subtracted therefrom. A new balance is thereafter written on the card by card reader/writer 711. The card is then rejected therefrom. If the last balance can not pay the postage, the card will be rejected from the card reader/writer after the balance is totally subtracted. The mailer then can depress the holding key 712 and insert a new money card. If the mailer wants to pay the due postage in cash, the postal clerk can depress cash key 714 after receiving the money to complete the postage payment procedure.

DEPR: In the meantime, when the mail L is conveyed to postage stamping area by conveying device 30 as shown in FIG. 9, the mail L will be further sent into the stamping area by rollers 2514, 2512 of the postage stamp device 25. When the mail is detected by the sensors thereof, the numeral wheels 271 thereof (see FIG. 7) are set to proper postage and date positions according to commands from the microprocessor. When the mail L reaches a predetermined position, the printing head 27 is rotated to imprint the set postage and date marks thereon, and the mail-processing operation is then accomplished. The receipt printers 781, 782 of the printer assembly

780 will automatically print the receipts and certificate, and the relevant data are stored in the microprocessor. Additionally, an income list will be printed regularly.

DEPR: Please now further refer to FIG. 10. Another example is set forth for further understanding the operations of the present invention. Supposing a mailer wants to mail an air small packet to the United States, since the small packet is not standard mail, and can not be stamped with postage stamp directly, a postage label is necessary to be attached to the small packet. Therefore, when managing the small packet, it must be first placed on the second weighing scale 500A to show its weight on the display devices 720, 720A. Thereafter, the necessary commands are input into the microprocessor via key board system 70. Referring to the international key board 740 as shown in FIG. 15, the non standard mail key 7402, air mail key 7405, small packet key 7411 and North America 7445 thereof are depressed, and in case of additional services, the insure key 7433 of the additional service key board is depressed. Consequently, the due postage is immediately displayed on the first and second display devices 720, 720A. The other procedures are identical to the aforesaid ones except that the postage label is supplied by postage label supply device 60 of the postage stamp device 25 as shown in FIG. 13. After imprinted with stamp 12~ device 25 to the collecting tank 21. The postal clerk then can attach the label to the air small packet. Simultaneously, the receipt printer 781 will send out a double receipt wherein the lower two sheets together with the postage label attached to the small packet while the lower sheet of the upper two sheets is given to the mailer and the upper sheet thereof is attached to a check record of the clerk for later inquiry.

DEPV: 1. The money receiver 710, as shown in FIG. 11, includes the card reader/writer 711, holding key 712, accumulating key 713, and cash key 714 four components, wherein the card reader/writer 711 is a conventional device, which can read the balance amount of money on the money card and subtract the postage therefrom and then write down the new rest value. During this procedure, the relevant data are processed by microprocessor via RS232 interface and displayed on display device 720, 720A. Moreover, the income amount signal is transmitted to printer assembly 780 via microprocessor, serving as the basis for single mail receipt and list printing. If multiple mails are mailed at a time, and the mailer requires that all postages be printed on one receipt, he can press the accumulating key 713, whereby the microprocessor will receive this command and print the accumulated postage on one receipt. For example, when a first money card can not totally pay the needed money and a second money card is required to pay the rest money, the holding key 713 can be pressed after first money card payment. If the rest money is paid by cash or at a time, the cash key 714 can be pressed after cash payment.

DEPV: 6. The actuating key 770 primarily performs the function that when all the inputs are accomplished by the keys on the operation panel, the actuating key 770 is depressed to enable the other portions of the present invention to practice the weighing, postage calculation, postage stamping, money receiving, receipt or certificate printing, datum storage, etc.

CLPR: 5. A device as claimed in claim 1, further comprising a postage label supply device operatively connected to said microprocessor for sending a blank postage label to said postage stamping device, whereby in case of non-standard mail, a signal is sent to said microprocessor from said keyboard system to command said postage label supply device to supply a blank postage

label to said postage stamping device to be imprinted with postage and date marks and released therefrom by said conveying device for a mailer to be attached to the mail.

CLPR: 16. A device as claimed in claim 14, wherein a pair of front and rear rocking arms are further provided under said movable stand, each of said rocking arms including a movable end pivotally connected to each end of said movable stand, and the other end of each rocking arm is pivoted on a pivot whereby a pair of electromagnetic actuators are connected to a middle portion of said front rocking arm so that when said electromagnetic actuator is activated, said movable end of each said rocking arm is pulled down with said pivot as a fulcrum, and since said movable stand is attached to said movable ends of both said rocking arms, said movable stand descends together therewith to a lower level, permitting a mail placed thereon to be weighed by said weighing means without contacting any other portion, and after weighing, said rocking arms return to their home positions, permitting the mail to be conveyed by said second and third conveying means into said postage stamping area of said postage stamp device.

CLPV: a display device mounted on said main body and operatively connected to said microprocessor via said display I/F circuit for displaying the weight of and postage due for a mail;

CLPV: an automatic postage stamping device operatively connected to said microprocessor via said postage stamping device I/F circuit, having postage numeral wheels and date numeral wheels for stamping a mail, whereby when mailing a mail, the mail is first weighed by an external weighing scale, and then the weight and relevant data are input to said microprocessor via said keyboard system, said display device displaying weight and due postage to indicate a mailer to pay the postage whereby when the postage is paid up, in case of a general standard mail, the mail is entered into said main body through said entrance thereof, and thereafter said conveying device conveys said mail to said postage stamping device whereby said microprocessor commands said postage stamping device to arrange said numeral wheels into required postage and date positions and imprint the postage and date marks on the mail, the imprinted mail being released from said postage stamping device by said conveying device to complete a mail-processing operation.

CLPV: a display device mounted on said main body and operatively connected to said microprocessor for communicating with the mailer, said display device including means for displaying weight of and postage due for the mail;

CLPV: an automatic weighing device for weighing the mail, said automatic weighing device being located in said weighing area and operatively connected to said microprocessor and including a weighing means and a movable stand, said stand including means for descending whereby the mail is weighed by said weighing means without contacting any other portion of said weighing device, whereupon the postage due is calculated by said microprocessor and displayed on said display device, whereupon when said postage due is paid by said mailer, said microprocessor commands said movable stand to return to its home position, whereupon the mail is further conveyed to said stamping area;

CLPV: a settable automatic postage stamping device for stamping a mail, said postage stamping device being located at said stamping area and operatively connected to said microprocessor, said

stamping device including postage numeral wheels and date numeral wheels, said postage stamping device being responsive to commands from said microprocessor to arrange said numeral wheels whereby the mail is carried by a set of rollers and simultaneously imprinted with a postage stamp including postage and date by said postage stamping device.

CLPV: a display device mounted on said main body and operatively connected to said microprocessor for communicating with the mailer, said display device including means for displaying weight of and postage due for the mail;

CLPV: a postage label supply device operatively connected to said microprocessor for supplying a blank postage label ;

CLPV: a settable automatic postage stamping device operatively connected to said microprocessor for stamping said blank postage label ;

CLPV: an automatic conveying device operatively connected to said microprocessor for conveying said blank 2~ postage label from said postage label supply device to postage label 12~;

CLPV: wherein said stamping device includes postage numeral wheels and date numeral wheels, said postage stamping device being responsive to commands from said microprocessor to command said numeral wheels to rotate to imprint the label with postage and date marks; and

CLPV: said postage stamping device includes an area from which said postage label is released after having been imprinted by said postage stamping device.

CLPV: when relevant data of a mail are input via said keyboard system, said microprocessor commands a set of driving gears to drive said second racks and control travel of said second racks so as to control, via said first racks, rotation angles of said numeral wheels to set said numeral wheels into required positions whereby when a mail enters a printing area of said postage stamping device, said main shaft driving means is commanded by said microprocessor to rotate said main shaft and said printing head one turn to imprint set postage, date or relevant marks of said numeral wheels on the mail, the mail being further sent to a subsequent processing device thereafter and said numeral wheels being zeroed for next printing cycle.

DOCUMENT-IDENTIFIER: US 5313404 A

TITLE: Automatic postal teller machine

ABPL: An automatic postal teller machine capable of automatically performing the postal operation in an unmanned condition, the operation procedure thereof including auto-conveying, auto-weighing, auto-postage calculation, auto-fast postal stamp adjusting, auto-money identification, auto-money receiving, auto-money coin changing, auto-stamping, auto-mail classification, auto-ZIP code printing and auto-data recording, wherein by means of commands of a microcomputer, whole mail-processing operation of each mail can be completed in about several seconds.

BSPR: The present invention relates to an automatic mail-processing machine, and more particularly to an intelligent automatic postal teller machine capable of automatically performing postal operations in an unmanned condition, such as mail conveying, weighing, postage calculation, postage stamp adjusting, money identification, money receiving, coin changing, stamping, mail classification, ZIP code printing, data recording and mail returning due to insufficiency of postage or change of mail plan.

BSPR: When mailing an item of mail, the mailer must go through weighing, postage calculation, buying the stamp, attaching the stamp of the item, and then dropping the item into the posting box, etc. The dispatched mail item must thereafter be checked for over-weight, postage due, and then stamped, sorted, etc, resulting in a large amount of work. However, the aforesaid procedures have been in use for a long time, and although the post administrations of various countries have tried to improve the defective operation, no innovations have been made.

BSPR: Therefore, it is a primary object of this present invention to provide an automatic postal teller machine which can perform the functions of receiving, conveying, and weighing mail, calculating postage, adjusting the postage stamp, money identification, money receiving, coin changing, stamping, mail classification, ZIP code printing, and data recording. All the above functions are controlled by a microcomputer and performed in an unmanned condition.

BSPR: It is a further object of this invention to provide the above postal teller machine, wherein the mail is weighed during conveyance, and the postage and data stamp device is operated by commands of a microcomputer.

DEPR: Referring to the drawings, and particularly to FIGS. 1-3, the automatic postal teller machine of the present invention primarily includes a housing, a main processor 10, a display 720, a key-in system 70, an automatic conveying and weighing device 23 (including automatic conveying device 30 and automatic weighing device 500), an automatic postage stamp device 25, an automatic mail classifying device 160, a coin identifying device 170, a money receiving device 172 and a coin changing device 171. In one preferred embodiment of this invention, the display 720 is located at an upper front portion of the housing, and a coin slot 1720 is located rightward above the display 720, and a money card slot 1720A is located at right side of the coin slot 1720, while at left side thereof is located a coin return button 1721. The key-in system 70 is disposed on the right side of the display 720 and includes an ordinary mail button 71, special delivery

button 72, air mail button 73, domestic mail button 79, etc. A mail drop 162 is disposed on the right side of the key-in system 70, while a coin returning opening 1722 is located under the key-in system 70. A money box door 1723 is located beside the coin return opening 1722 for taking out a money box 1723A. A relatively large mail storing box 161 is located at a lower portion of the housing, and the microprocessor 10 is disposed above the mail storing box 161 (see FIG. 2). Behind the mail drop 162 are disposed the automatic conveying and weighing device 23 and the postage stamp device 25. Behind the postage stamp device 25 is the mail classification device 160. A slant mail classifying guide passage 162 goes into the mail storing box 161, and a slant coin passage 1724 behind the coin slot 1720 goes toward the coin identifying device 170, as shown in FIG. 3. Below the coin identifying device 170 is disposed the changing and coin returning opening 1722. A false coin can be identified by the coin identifying device 170 and guided to the coin return opening 1722. In addition, a change supplement inlet 1710 (not shown) is disposed on a top portion of the housing and communicates with the coin changing device 171, whereby the change can go through a slant change passage 1725 into the changing and coin return opening 1722. It should be noted that the coin identifying device 170, coin changing device 171 and mail classifying device 160 used in this invention are well known in the prior art, and therefore the description thereof is omitted.

DEPR: Please now refer to FIGS. 4A through 4D, wherein FIG. 4A shows a postal teller machine system of this invention utilizing coins and FIG. 4B shows a system utilizing money card, while FIG. 4C shows a system utilizing both money card and coins. As shown in FIG. 4A, the system utilizing coins primarily includes a main processor 10, a display 720, a weighing device 500, a mail classifying device 160, a coin identifying device 170, a coin changing device 171, a printer 780, a key-in system 70, an automatic conveying device 30 and an automatic postage stamp device 25, wherein the main processor 10 includes a display interface (I/F) circuit 11, a weighing device I/F circuit 12, a mail classifying device I/F circuit 16, a coin changing device I/F circuit 17, coin identifying device I/F circuit 17A, a printer I/F circuit (CKT) 14 commanding the printer 780 to work, a key-in system I/F CKT 18 capable of receiving commands from key-in system 70 and communicating therewith, an auto-conveying device I/F CKT 19 used to control auto-conveying device 30 and receive signals therefrom and communicate therewith, a parallel bus 22 related to the auto-conveying device I/F CKT 19, a parallel bus I/F CKT 22A, a postage stamp device I/F CKT 20 used to control auto-postage stamp device 25 and receive signals therefrom and communicate therewith, and a parallel bus 21 related to the postage stamp device I/F CKT 20 and a parallel bus I/F CKT 21A. As shown in FIG. 4A, the postage stamp device 25 includes a postage stamp device control switch (SW) 25A, a postage stamp device control unit 25B, a sensor CKT 25C, a sensor I/F CKT 25E, a sensor S5, S6, a driver CKT 25D, a driver I/F CKT 25F and a driver 251, 253, 256, etc. The auto-conveying device 30 includes an auto-conveying device control SW 30A, an auto-conveying device control unit 30B, a sensor CKT 30C, a sensor I/F CKT 30E, a sensor S1-S4, a driver CKT 30D, a driver I/F CKT 30F and a driver 300, wherein the auto-postage stamp device 25 transmits the signals obtained by sensors S5, S6 through the sensor I/F CKT 25E, sensor CKT 25C to auto-postage stamp device control unit 25B, auto-postage stamp device control SW 25A, and then the signals are converted into effective commands via the programs of the microprocessor and sent to the driver CKT 25D, driver I/F CKT 25F to command the drivers 251, 253, 256 to operate in accordance with the commands. The auto-conveying device 30 also transmits the signals obtained by sensors S1-S4 through the sensor I/F

CKT 30E, sensor CKT 30C to the auto-conveying device control unit 30B, auto-conveying device control SW 30A, and then the signals are converted into effective commands via the programs of the microprocessor and sent to the driver CKT 30D and driver I/F CKT 30F to command the driver 300 to operate according to the command.

DEPR: In FIG. 4C, a system utilizing both coins and money card is shown. The user can use coins or money card to pay the postage as desired.

DEPR: Please now refer to FIGS. 5A through 5C, wherein the operation of this invention is described in a flow chart. There are two ways by which the system of this invention can be operated, one of which is by coin payment (FIG. 5A), and the other of which is by money card payment (FIG. 5B).

DEPR: First referring to FIG. 5A, the operation procedure of this invention starts from F1, and then goes to clearance F2, stand by F3, and dropping the mail into the mail drop 162 F4. At this time, the mail is carried to the weighing device 500 by the automatic conveying device 30 for weighing. The procedure then goes to F6. At this time, the user can see the weight of the mail from the display 720 Then, in F7, the user presses one of the mail classifying keys 71 through 79 of the key-in system 70 according to the instruction of microprocessor. Thereafter, in F8, the microprocessor will according to the weight signal sent from the weighing device 500 and the classification of the mail calculate the postage due and display the same on the display 720. In F9, if the mailer decides not to send the item, he/she can press the mail returning key 79, whereupon the item is immediately returned, and in F91, F92 the item will then be returned to the mail drop 162 by the automatic conveying device 30 in a reverse direction. Alternatively, if the user wishes to continue and presses the appropriate key of the key-in system in response to microprocessor, then in F10, the microprocessor will instruct the user via the display to insert the coins. The inserted coins are identified by money identifying device 170 and the amount of money inserted will be displayed on the display. In F11, the user will be told if the amount is enough for paying the postage, and in case the user does not insert enough coins in a certain time, the item will be returned, and the inserted coins will be returned by means of pressing the coin returning button 1721. The procedure then goes to F17 and ends. If excessive amount of coins are inserted, then the coin changing device 171 will return the change to the coin returning opening 1722. In F12, the display 720 will show the payment state, and the item will be conveyed to the postal stamp device 25 for stamping in F14. The postage receipt will then be released from the printer 780 in F13. The stamped mail will be sent to the mail classifying device 160 in F15 from the rear side of the postal stamp device 25, and enter the mail storing box 161 as shown in FIG. 2. The payment data of the mail is then stored in the microprocessor in F16 and can be printed out by the printer if necessary. The procedure then ends at F17.

DEPR: To better understand the mail-processing operation of the present invention, two main portions thereof, i.e. automatic weighing device for conveyed mail and automatic postal stamp device are described in detail as follows:

DEPR: After a pre-set time period following measurement of the object's weight, the electromagnetic actuator 100 will be deactivated, and both rocking arms 120 are drawn back by

the force of the springs 104 and the movable stand 200 is restored to its initial position. The letter L, having been weighed, is again held between the first and second idle wheels 201A, 201B and the first and second conveying means 301B, 301C, and thus continues to be conveyed into the postage stamp device 25.

DEPR: Turning now to FIGS. 9 to 12, an embodiment of the postage stamp device 25 of this invention is shown. The printer 25 includes a conveying system and a postmark printing system wherein the conveying system is arranged above and below a conveying reference surface A1, including a main driving means and first driving means, e.g., motor 251 of the conveying system, and a first roller 2512 driven through a timing belt 2510 (not shown). Referring to FIGS. 9 and 12, there are installed an idle roller 2514 with a stretching spring (not shown) above the first roller 2512. The postage stamp device 25 is shown in FIGS. 9 and 10, including a main shaft driving means 256, pulleys 2561, 2563, a timing belt 2562, a main shaft 2505, on which a plurality of second racks 2504 are slidably mounted, a plurality of stepper motors 253A, . . . 253H for driving their respective numeral wheels 271, 272 through their respective related gears means 253A4 . . . 253H4, ink-printing means 40, a printing head 27, and an idle roller 2516 thereof (see FIGS. 9, to 12). The printing head 27, as seen in FIG. 11, includes a postmark wheel means 271 for imprinting postage, a postmark wheel means 272 for imprinting accepted date, a graphical postmark means 273 for imprinting advertising marks.

DEPR: Please now refer to FIG. 13, which illustrates the operation of the present invention. The present invention essentially includes the automatic weighing device 23 and automatic postage stamp device 25, which have been described in preceding paragraph.

CLPR: 3. A teller machine as claimed in claim 1, further comprising a mail classifying device disposed behind said postal stamp device and a mail classifying device interface circuit disposed in said microprocessor.

CLPR: 6. A teller machine as claimed in claim 1, wherein said money receiving device includes a card reader/writer, and an asynchronous interface circuit is added to said microprocessor so that the mailer can use magnetic money card to pay the postage.

CLPR: 9. A teller machine as claimed in claim 1, wherein said postage stamp device is on line connected to said microprocessor via a parallel bus interface circuit and postage stamp device interface circuit.

CLPR: 13. A teller machine as claimed in claim 1, wherein said postage stamp device includes a postage stamp device control switch, postage stamp device control unit, sensor, sensor circuit thereof, sensor interface circuit thereof, driver, driver circuit thereof and driver interface circuit thereof.

CLPR: 17. A teller machine as claimed in claim 15, wherein a pair of front and rear rocking arms are further provided under said movable stand, each of said rocking arms including a movable end pivotally connected to each end of said movable stand, and the other end of each rocking arm is pivoted on a pivot whereby a pair of electromagnetic actuators are connected to a middle portion

of said front rocking arm so that when said electromagnetic actuator is activated, said movable end of each said rocking arm is pulled down with said pivot as a fulcrum, and since said movable stand is attached to said movable ends of both said rocking arms, said movable stand descends together therewith to a lower level, permitting a mail placed thereon to be weighed by said weighing means without contacting any other portion, and after weighing, said rocking arms return to their home positions, permitting the mail to be conveyed by said first and second conveying means into a postage stamping area of said postage stamp device.

CLPV: an automatic weighing device operatively connected to said microprocessor for receiving the mail dropped from the mail drop and conveying the mail to a weighing area for weighing, said automatic weighing device including an automatic conveying means, a weighing scale and a movable and vertically displaceable stand for supporting the mail, the mail being completely separated from said conveying means when the mail is weighed by said 2~weighing scale, commands and the weight 12~ of the mail;

CLPV: an automatic postal stamp device adjacent to said automatic weighing device, having postage stamp numeral wheel means and date stamp numeral wheel means; and

CLPV: a printing head disposed on a second end of said main shaft whereby when relevant date of a mail are input via said key board system, said microprocessor commands driving gear of a set of second rocks slidably disposed on said grooves of said main shaft to control travels of said second racks and consequently control rotation angles of said numeral wheel to set numeral wheels into required positions whereby when a mail enters a printing area of said postage stamp device, said main shaft driving means is commanded to rotate said main shaft one turn to imprint set postage, date or relevant marks of said numeral wheels on the mail, the mail being further sent to a subsequent processing device thereafter and said numeral wheels being zeroed for next printing cycle.

DOCUMENT-IDENTIFIER: US 5340948 A
TITLE: System for mailing and collecting items

ABPL: A system for accepting and storing items for subsequent pickup by a commercial carrier includes a storage area which is defined by an outer housing, and a customer interface area that includes a weighing unit and a unit, such as a magnetic card reader, for accepting payment from a customer. The system may also include a control system that accepts address information from the customer through a key pad, and then instructs a printer to print an address label for the item. The system includes safeguards which prevent unauthorized access to the storage area, and will not provide a receipt to the customer until internal sensors verify deposit of the item. A manifest printer may also be provided for the benefit of the commercial carriers who service the system, to print out a summary of the transactions that pertain to each carrier. A passive device is also provided in the storage area for directing a parcel to a position within the storage area based on the shape and position of the parcel as it exits the deposit area.

BSPR: In order to achieve the above and other objects of the invention, a system for accepting and storing parcel packages, according to a first aspect of the invention, for subsequent pick-up by a commercial carrier includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale, accessible from outside the outer surface of the outer housing, for weighing a parcel which a customer intends to ship; a keyboard, also accessible from outside said outer surface of said outer housing, for inputting information relating to the destination of the parcel from the customer; a controller for calculating a shipment fee for the parcel, the controller being in communication with the scale and the keyboard; payment structure, in communication with the controller, for accepting payment identity information from the customer; deposit structure, enabled by the controller, for permitting a customer to securely deposit the parcel into the storage area; and distributing structure for distributing parcel received from the deposit structure evenly throughout the storage area, whereby the volume within the storage space is utilized more efficiently for storing the parcels than would otherwise be possible.

BSPR: An outdoor system for accepting and storing parcel packages for subsequent pick-up by a commercial carrier includes, according to a second aspect of the invention, an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale, accessible from outside the outer surface of the outer housing, for weighing a parcel which a customer intends to ship; a keyboard, also accessible from outside the outer surface of the outer housing, for inputting information relating to the destination of the parcel from the customer; control structure for calculating a shipment fee for the parcel, the control structure being in communication with the scale and the keyboard; payment structure, in communication with the control structure, for accepting payment identity information from the customer; deposit structure, enabled by the control structure, for permitting a customer to securely deposit the parcel into the storage area; and climate control structure for maintaining the storage area at a safe temperature which will not damage the parcel.

DEPR: First, a customer approaches the customer interface area 16, and lays whatever personal effects he or she may have upon the platform 20. The customer then measures the dimensions of

the item being shipped on the indicia which is provided on or about platform 20. The video display terminal or screen 24 at this point and displays a prompt which instructs the customer to place the envelope, parcel or package on electronic scale 22 and instructs the customer to push a start button on key pad 28 to initiate a deposit. Once control system 100 receives input from electronic scale 22 and the start button, it evaluates the input to check whether the package, parcel or envelope exceeds a predetermined weight maximum, which preferably is approximately 70 pounds. If the package exceeds the predetermined maximum, control system 100 displays a message on video display terminal 24 to the effect that the system cannot accept packages which exceed the predetermined maximum weight. If the package is within the predetermined weight maximum, control system 100 displays a prompt on video display terminal 24 which instructs the customer to pass a magnetic credit or debit card through magnetic card reader 30. Preferably, system 10 is compatible with most commercial bank cards, as well as any proprietary cards that its commercial client delivery services may issue. After the customer has passed a magnetic card through reader 30, control system 100 evaluates the information received from card reader 30 and determines whether or not the card information meets certain predetermined characteristics. Those characteristics may be the type of card, the expiration date, and whether the card is listed in the CPU memory as a "bad" card. If the information does not meet these criteria, the control system 100 displays a prompt on terminal 24 to pass the card through reader 30 a second time. If the card information is approved by system 100, system 100 will display a prompt on terminal 24 which asks for a phone number where the customer can normally be reached. After the customer enters a phone number through key pad 28, system 100 evaluates the number to see whether it meets predetermined criteria, such as whether the number is either seven or ten digits. If it does not, system 100 displays a second prompt on terminal 24 which asks the customer to reenter the number. If the number meets the selected criteria, system 100 displays a screen which requests the customer to enter the desired zip code of the item which is to be mailed. The customer then enters the destination zip code through key pad 28, and the system 100 evaluates the code against certain criteria, such as whether exactly five digits have been entered. If the criteria are not met, a screen is displayed which instructs the customer to re-enter the zip code. If the zip code that is entered by the customer meets the pre-determined criteria, system 100 displays a screen on terminal 24 which instructs the customer to enter the value of the item that is being deposited. The customer then enters the value of the item through key pad 28. This information is evaluated by system 100 and compared with certain criteria, such as whether it exceeds a predetermined maximum. If the information does not meet the criteria, the system displays a screen on terminal 24 which instructs the customer to re-enter the evaluation information. If the entered value meets the criteria, system 100 will display a screen which instructs the customer to enter the size of the package. Once the customer enters the size of the package through key pad 28, the system will automatically re-weigh the package without informing the customer. If control system 100 determines that the weight of the package has changed since the original weighing, it will display a screen on terminal 24 which warns the customer against touching the package. At that point, control system 100 again re-weights the package. Once a consistent weight reading is achieved, or if the package weight has remained unchanged since the original reading, system 100 will automatically calculate the charges that are to be applied to the credit or debit card account and will then display a screen on terminal 24 which requests the customer to enter the preferred mode of transportation for the item. At this point, a menu of the fees different services would charge may appear, and the customer can specify which commercial delivery service he or she would like

to use by entering the appropriate information through key pad 28. Once this information is received by system 100, system 100 will display a screen on terminal 24 which asks the customer whether the customer would like to change any previous entries. If the customer responds through key pad 28 in the affirmative, the system 100 will display a screen on terminal 24 which allows the customer to select which input the customer would like to change, and, upon entry of the appropriate information by the customer, will allow the customer to change previously-input data.

DEPR: If the customer indicates that all of the previously-input information is still valid, or if all incorrect information has been re-entered correctly, control system 100 will actuate printer 26 to print a mailing label for the package. Preferably, printer 26 is equipped with a peel-type laminated label material which can be peeled off to expose an adhesive backing. Once the label is printed, the customer peels the back off of the label, and places the label on the item that is to be mailed. At this point, control system 100 displays a screen on terminal 24 which instructs the customer to take the label from the printer, to write the mailing address onto the label, to place the label on the package, and to place the envelope or package in the appropriate door. If, because of the previously-input information, control system 100 determines that the item to be mailed is an envelope, it instructs the customer to place the envelope into the dump drop 92. At this point, control system 100 will take no further action until it receives input from the third photoelectric sensor 116 that an envelope has indeed travelled down inclined chute 94 and into the collection space 96.

CLPV: control means for calculating a shipment fee for the parcel, said control means being in communication with said scale and said information inputting means;

CLPV: control means for calculating a shipment fee for the parcel, said control means being in communication with said scale and said information inputting means;

DOCUMENT-IDENTIFIER: US 5369221 A
TITLE: System for mailing and collecting items

ABPL: A system for accepting and storing items for subsequent pickup by a commercial carrier includes a storage area which is defined by an outer housing, and a customer interface area that includes a weighing unit and a unit, such as a magnetic card reader, for accepting payment from a customer. The system may also include a control system that accepts address information from the customer through a key pad, and then instructs a printer to print an address label for the item. The system includes safeguards which prevent unauthorized access to the storage area, and will not provide a receipt to the customer until internal sensors verify deposit of the item. A manifest printer may also be provided for the benefit of the commercial carriers who service the system, to print out a summary of the transactions that pertain to each carrier.

BSPR: In order to achieve the above and other objects of the invention, a system for accepting and storing parcel packages, according to a first aspect of the invention, for subsequent pick-up by a commercial carrier includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale, accessible from outside the outer surface of the outer housing, for weighing a parcel which a customer intends to ship; a keyboard, also accessible from outside said outer surface of said outer housing, for inputting information relating to the destination of the parcel from the customer; a controller for calculating a shipment fee for the parcel, the controller being in communication with the scale and the keyboard; payment structure, in communication with the controller, for accepting payment identity information from the customer; deposit structure, enabled by the controller, for permitting a customer to securely deposit the parcel into the storage area; and distributing structure for distributing parcel received from the deposit structure evenly throughout the storage area, whereby the volume within the storage space is utilized more efficiently for storing the parcels than would otherwise be possible.

BSPR: An outdoor system for accepting and storing parcel packages for subsequent pick-up by a commercial carrier includes, according to a second aspect of the invention, an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale, accessible from outside the outer surface of the outer housing, for weighing a parcel which a customer intends to ship; a keyboard, also accessible from outside the outer surface of the outer housing, for inputting information relating to the destination of the parcel from the customer; control structure for calculating a shipment fee for the parcel, the control structure being in communication with the scale and the keyboard; payment structure, in communication with the control structure, for accepting payment identity information from the customer; deposit structure, enabled by the control structure, for permitting a customer to securely deposit the parcel into the storage area; and climate control structure for maintaining the storage area at a safe temperature which will not damage the parcel.

DEPR: First, a customer approaches the customer interface area 16, and lays whatever personal effects he or she may have upon the platform 20. The customer then measures the dimensions of the item being shipped on the indicia which is provided on or about platform 20. The video display terminal or screen 24 at this point and displays a prompt which instructs the customer to

place the envelope, parcel or package on electronic scale 22 and instructs the customer to push a start button on key pad 28 to initiate a deposit. Once control system 100 receives input from electronic scale 22 and the start button, it evaluates the input to check whether the package, parcel or envelope exceeds a predetermined weight maximum, which preferably is approximately 70 pounds. If the package exceeds the predetermined maximum, control system 100 displays a message on video display terminal 24 to the effect that the system cannot accept packages which exceed the predetermined maximum weight. If the package is within the predetermined weight maximum, control system 100 displays a prompt on video display terminal 24 which instructs the customer to pass a magnetic credit or debit card through magnetic card reader 30. Preferably, system 10 is compatible with most commercial bank cards, as well as any proprietary cards that its commercial client delivery services may issue. After the customer has passed a magnetic card through reader 30, control system 100 evaluates the information received from card reader 30 and determines whether or not the card information meets certain predetermined characteristics. Those characteristics may be the type of card, the expiration date, and whether the card is listed in the CPU memory as a "bad" card. If the information does not meet these criteria, the control system 100 displays a prompt on terminal 24 to pass the card through reader 30 a second time. If the card information is approved by system 100, system 100 will display a prompt on terminal 24 which asks for a phone number where the customer can normally be reached. After the customer enters a phone number through key pad 28, system 100 evaluates the number to see whether it meets predetermined criteria, such as whether the number is either seven or ten digits. If it does not, system 100 displays a second prompt on terminal 24 which asks the customer to reenter the number. If the number meets the selected criteria, system 100 displays a screen which requests the customer to enter the desired zip code of the item which is to be mailed. The customer then enters the destination zip code through key pad 28, and the system 100 evaluates the code against certain criteria, such as whether exactly five digits have been entered. If the criteria are not met, a screen is displayed which instructs the customer to re-enter the zip code. If the zip code that is entered by the customer meets the pre-determined criteria, system 100 displays a screen on terminal 24 which instructs the customer to enter the value of the item that is being deposited. The customer then enters the value of the item through key pad 28. This information is evaluated by system 100 and compared with certain criteria, such as whether it exceeds a predetermined maximum. If the information does not meet the criteria, the system displays a screen on terminal 24 which instructs the customer to re-enter the evaluation information. If the entered value meets the criteria, system 100 will display a screen which instructs the customer to enter the size of the package. Once the customer enters the size of the package through key pad 28, the system will automatically re-weigh the package without informing the customer. If control system 100 determines that the weight of the package has changed since the original weighing, it will display a screen on terminal 24 which warns the customer against touching the package. At that point, control system 100 again re-weights the package. Once a consistent weight reading is achieved, or if the package weight has remained unchanged since the original reading, system 100 will automatically calculate the charges that are to be applied to the credit or debit card account and will then display a screen on terminal 24 which requests the customer to enter the preferred mode of transportation for the item. At this point, a menu of the fees different services would charge may appear, and the customer can specify which commercial delivery service he or she would like to use by entering the appropriate information through key pad 28. Once this information is received by system 100, system 100 will display a screen on terminal 24 which asks the customer

whether the customer would like to change any previous entries. If the customer responds through key pad 28 in the affirmative, the system 100 will display a screen on terminal 24 which allows the customer to select which input the customer would like to change, and, upon entry of the appropriate information by the customer, will allow the customer to change previously-input data.

DEPR: If the customer indicates that all of the previously-input information is still valid, or if all incorrect information has been re-entered correctly, control system 100 will actuate printer 26 to print a mailing label for the package. Preferably, printer 26 is equipped with a peel-type laminated label material which can be peeled off to expose an adhesive backing. Once the label is printed, the customer peels the back off of the label, and places the label on the item that is to be mailed. At this point, control system 100 displays a screen on terminal 24 which instructs the customer to take the label from the printer, to write the mailing address onto the label, to place the label on the package, and to place the envelope or package in the appropriate door. If, because of the previously-input information, control system 100 determines that the item to be mailed is an envelope, it instructs the customer to place the envelope into the dump drop 92. At this point, control system 100 will take no further action until it receives input from the third photoelectric sensor 116 that an envelope has indeed travelled down inclined chute 94 and into the collection space 96.

CLPV: control means for calculating a shipment fee for the parcel, said control means being in communication with said scale and said information inputting means;

DOCUMENT-IDENTIFIER: US 5481464 A
TITLE: System for collecting and shipping items

BSPR: In order to achieve the above and other objects of the invention, a system for accepting and storing parcel packages, according to a first aspect of the invention, for subsequent pickup by a commercial carrier includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale, accessible from outside the outer surface of the outer housing, for weighing a parcel which a customer intends to ship; a keyboard, also accessible from outside said outer surface of said outer housing, for inputting information relating to the destination of the parcel from the customer; a controller for calculating a shipment fee for the parcel, the controller being in communication with the scale and the keyboard; payment structure, in communication with the controller, for accepting payment identity information from the customer, e.g. a bank card; deposit structure, enabled by the controller, for permitting a customer to securely deposit the parcel into the storage area, whereby the volume within the storage space is utilized more efficiently for storing the parcels than would otherwise be possible.

BSPR: A system for accepting and storing parcel packages for subsequent pickup by a commercial carrier includes, according to a second aspect of the invention, an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale, accessible from outside the outer surface of the outer housing, for weighing a parcel which a customer intends to ship; a keyboard, also accessible from outside the outer surface of the outer housing, for inputting information relating to the destination of the parcel from the customer; control structure for calculating a shipment fee for the parcel, the control structure being in communication with the scale and the keyboard; payment structure, in communication with the control structure, for accepting payment identity information from the customer; deposit structure, enabled by the control structure, for permitting a customer to securely deposit the parcel into the storage area; and climate control structure for maintaining the storage area at a safe temperature which will not damage the parcel.

DEPR: System 10 may be compatible with at least one commercial bank card such as VISA or Master Card. If desired, system 10 is selectively compatible with several different commercial bank cards. After the customer has passed the magnetic card through reader 30, control system 100 evaluates the information received from card reader 30 and determines whether or not the card information meets certain predetermined characteristics. Those characteristics may be the type of card, the expiration date, and whether the card is listed in the CPU memory as a "bad" card. The reader 30 may be connected to a dedicated telephone line that communicates with a central location for processing charges on the bank card. The validation of the card may also be processed over the telephone line. If desired, the telephone line may include the capacity for verbal communication by the customer with an information source or service center concerning the operation of the system 10.

DEPR: If the entered value meets the criteria, system 100 will display a screen which instructs the customer to enter the size of the package. Once the customer enters the size of the package through key pad 28, the system will automatically re-weigh the package without informing the

customer. If control system 100 determines that the weight of the package has changed since the original weighing, it will display a screen on terminal 24 which warns the customer against touching the package. At that point, control system 100 again re-weighs the package. Once a consistent weight reading is achieved, or if the package weight has remained unchanged since the original reading, system 100 will automatically calculate the charges that are to be applied to the credit or debit card account and will then display a screen on terminal 24 which requests the customer to enter the preferred mode of transportation for the item.

DEPR: If the customer indicates that all of the previously-input information is still valid, or if all incorrect information has been reentered correctly, control system 100 will actuate printer 26 to print a mailing label for the package. Preferably, printer 26 is equipped with a peel-type laminated label material which can be peeled off to expose an adhesive backing. Once the label is printed, the customer peels the back away from the label, and places the label on the item that is to be mailed. At this point, control system 100 displays a screen on terminal 24 which instructs the customer to take the label from the printer, to write the mailing address onto the label, to place the label on the package, and to place the envelope or package in the appropriate door.

CLPR: 16. The integrated, automated, unattended unit of claim 15 wherein said fee communicating means includes means for validating said credit card prior to issuing the shipping label.

CLPR: 20. The integrated, automated, unattended unit of claim 19 wherein said fee communicating means includes means for validating said account prior to issuing the shipping label.

CLPR: 29. The integrated, automated, unattended unit of claim 28 wherein said fee communicating means includes means for validating said account prior to issuing the shipping label.

CLPV: control means for calculating a shipment fee for the item, said control means being in communication with said weighing means and said information inputting means;

CLPV: means in communication with said control means, for accepting identification information relating to eventual payment from the customer, said communication means comprising means for receiving and reading a credit card, means for communicating the charges information to a central location for billing the charges to said customer;

CLPV: control means for calculating a shipment fee for the item, said control means being in communication with said weighing means and said information inputting means;

CLPV: control means for calculating a shipment fee for the item, said control means being in communication with said weighing means and said information inputting means;

CLPV: control means for calculating a shipment fee for the item, said control means being in communication with said weighing means and said information inputting means;

DOCUMENT-IDENTIFIER: US 5586037 A

TITLE: Automated self-service mail processing and storing systems

ABPL: An automated self-service mail processing and storing system is disclosed which is capable of receiving input from and providing instructions to a user via a touch-sensitive screen or a digitized voice system. The system is capable of weighing the mail item, receiving user identification information from a credit/debit card, for example, for payment, calculating the charge for shipment and deducting that amount from the user's charge account, and securely storing the item for subsequent pickup. The system contains a novel weighing means capable of detecting minute vibrations for purposes of obtaining an accurate weight amount. The system may also contain a tracking bar code generation means and a tracking bar code verification system. Optionally, a dual floppy disk system allows the user to send electronic mail, and a built-in facsimile apparatus allows the user to send "FAX" information through the telephone line. Also disclosed is a two-way communication means coupled between the mail processing and storing system computer and a remote computer station for providing such functions as credit authorization and charge reporting, transaction and tracking information transfers, error reporting, etc.

BSPR: While perhaps not widely used commercially, there are several types of automated self-service mailing machines for processing mail for shipment described in various U.S. patents. U.S. Pat. No. 5,233,532 to Ramsden, for example, is directed to a mailing system which allows a user to process and store mail items for subsequent pick-up by a commercial carrier. In particular, the user is able to enter identification information into the system for purposes of payment, enter destination information for shipment, weigh the item, obtain a charge for shipping the item, and deposit the item into a locked storage area. The system contains an intermediate deposit area ("secured deposit means") which is separated by two inner doors from the storage area. The system contains an electronic scale separate from the intermediate deposit area. After the item is weighed, it is placed into the intermediate deposit area. Once the user closes an outer door to the intermediate area, the item is moved through the inner doors by a series of rollers into a storage area. While this reference suggests the re-weighing of the item to obtain an accurate weight, there is no mechanism to prevent the user from weighing a lighter object to obtain a low cost, and then placing into the intermediate deposit area the heavier item to be shipped.

BSPR: U.S. Pat. Nos. 5,065,000 ("000"), 4,923,022 ("022"), and 5,025,386 ("386") to Pusic are also directed to automated mail systems designed to process and store items, in particular letters. The systems described in these references contain internal weighing means and means for printing machine-readable information (i.e. bar codes) onto the item to be mailed. These references do not appear to teach or suggest a single, rotatable postage meter for generating and dispensing postage meter stamps or strips, nor do they teach a weighing scale capable of detecting minute vibrations that will not operate until such vibrations are absent. Moreover, the references do not teach a tracking bar code verification system to verify that a letter has a tracking bar code or a readable tracking bar code on it.

BSPR: Thus, it is desirable to have an automatic self-service mail processing and shipping system that allows a user to weigh the mail item securely and accurately to prevent tampering, select from

several different mail services (e.g. package or letter, First Class or International), calculate and pay the charge for shipping, obtain a receipt, securely store the item for subsequent pick-up by a commercial carrier, and that is fully capable of processing and storing packages as well as letters. It is also desireable to have a system that includes a single postage meter that is capable of printing a stamp directly onto a letter as well as dispense a postage meter strip for subsequent affixation onto a package or letter.

BSPR: In the most preferred embodiments of the present invention, the inventive system comprises a area for processing and storing letters separate from another area for processing and storing packages. Preferably in these embodiments, the system includes a rotatable postage meter which is capable of printing a postage meter stamp directly onto a letter and of printing and dispensing a postage meter strip directly to the user through the outer housing for affixation onto a letter or package. Preferably, the inventive system comprises a communication means coupling the computer to the postage meter to activate an automatic meter imprint date change mechanism.

BSPV: (h) a 2~ postage stamp printing and dispensing means coupled to said computer for letter, and for printing and dispensing a postage meter stamp 12~ for subsequent affixation onto said item;

BSPV: (h) a postage printing means contained within said outer housing and coupled to said computer for printing a postage meter stamp directly onto said letter;

BSPV: (j) a weighing means contained within said automatic transport means and coupled to said computer for weighing a letter prior to transport to said postage printing means;

BSPV: (l) Credit authorization and charge reporting;

DRPR: FIG. 4b is a top view of the inventive system's rotatable postage meter at elevation +40.00" showing the rotatable postage meter in the retracted, home position for printing a postage meter stamp onto a letter.

DRPR: FIG. 4c is a top view of the inventive system's rotatable postage meter at elevation +40.00" showing the rotatable postage meter in the forward position and ready for printing a postage meter stamp onto a letter.

DEPR: Next, a postage meter (211) is orientated into the correct position for generating a postage meter stamp or strip. For letters, the postage meter (211) is designed to print the postage meter stamp directly onto the letter. For items such as packages or letters that are not fed through the postage meter, the postage meter is preferably capable of printing and dispensing a postage meter strip for subsequent affixation onto the item by the user. Preferably, a rotatable postage meter is used which will dispense the stamp in the form of a postage meter strip directly to the user through the outer housing. This postage meter rotation system (205) is completely controlled via the computer (1308) and digital I/O port B (See FIG. 6a). The computer (1308) will utilize a software control program which rotates the meter according to pre-determined conditions. If the postage meter (211) is in the home or retracted position (b) as shown in FIG. 4b, for example,

the software program via the computer (1308) will cause the postage meter (211) to move forward toward the front side of the outer housing (position c) utilizing a horizontal linear actuator (207) and a translation table (216), as shown in FIG. 4c, for example. This movement will bring the postage meter (211) to a position for receiving a letter and for printing a postage meter stamp directly onto the letter.

DEPR: Once the letter is weighed, the computer will receive the weight measurement via the A/D weigh card (1202), and utilizing the rate tables stored on the computer hard disc (1210) and the software program, the computer (1308) will calculate the cost for sending the letter. After the system displays the charge amount to the user, the user is requested to touch the touch-screen (110) which will display an Approval Touch Button for purposes of continuing the transaction. Where an autofeed mechanism is not used, the user is asked to insert the letter into the letter acceptance slot (104), located behind the outer letter security door (213), to continue the mailing transaction. Alternatively, the user may select other options in lieu of continuing the transaction, in particular to cancel the transaction or perform a different transaction. Once the user touches this button, the computer will activate the postage meter (211) through relay (1231) (FIG. 6a), lower the outer letter security door (213), and then activate the automatic transport means (149) (if present). This will send the letter, guided by a letter guide (212), into the postage meter (211). Once the letter passes through the postage meter and is imprinted with the postage meter stamp, the letter will hit the letter deflector (208) which will direct the letter into a secured storage area, such a letter tray (134), preferably located below the postage meter as shown in FIGS. 1a and 4a. Once the letter passes through the postage meter (211), the outer letter security door (213) will close and will not open again until another letter is detected by the optical sensor (225) (FIG. 4).

DEPR: To process and store a package for mailing, the user preferably follows the flow diagrams illustrated in FIGS. 16a-6b. Similarly, the following description for processing and storing a package could be applied to a letter. Once the user has entered payment, most preferably his or her user identification information, and has selected to mail a package, the computer will activate a mechanism, including a software controlled system, to position the postage meter (211) into the correct orientation for printing and dispensing a postage meter strip directly to the user. As discussed above, the postage meter (211) is preferably also capable of directly printing a postage meter stamp onto a letter. Thus, in order to dispense a postage meter strip directly to the user for affixation onto a package, for example, a preferred aspect of the present invention is that the postage meter (211) be capable of rotating, as previously discussed in greater detail, so that the postage meter can dispense the postage meter stamp directly to the user through the front side of the outer housing (102a). For dispensing a postage meter stamp, if the postage meter is not in the home or retracted position (d), as shown in FIG. 4d, the software controlled system will properly orientate the postage meter by first retracting the postage meter from forward position (c) to the home position (b) by utilizing a linear actuator (207) if the limit switch (221) is not activated. Once the limit switch (221) is activated, the software control program will operate the rotation motor (202) which will rotate the postage meter about 180 degrees to a new position (d), as illustrated in FIG. 4d, which will be detected by limit switch (209). Once this rotation is completed, the postage meter will move forward to position (e), as shown in FIG. 4e, utilizing linear actuator (207), which will stop automatically by utilizing an internal switching mechanism.

DEPR: Once the computer (1308) identifies the correct information from the user information card, i.e. if payment is made by this means), it will transmit this information via modem (1262) and telephone line (1264) (FIGS. 6b-6c) to an external credit/debit authorization center. Once the authorization is obtained, the software program will automatically activate the next screen which will request the user to make a selection between various services offered through the particular commercial carrier. By using a communication means, preferably either digitized voice instructions or video instructions, the user will be instructed to put his or her package into a secured item acceptance area (106). An outer security door (108) will automatically open, as discussed in more detail below, and the user will be able to place his package on an item-holding platform or bin (408) capable of tilting towards the back side of the outer housing (102b) to deposit the item into a secured storage area (410) at the appropriate time. The tilting mechanism used to deposit the item into a secured storage area (410) is discussed in more detail below.

DEPR: If the user desires to print his own shipping label, he will be able to do so by touching a print label touch button which will activate either a touch-screen alphanumeric keyboard (110) or a hidden-keyboard (156), which will come out for the user to use, such as that illustrated in FIG. 1b, for example. Once the user has completed typing in the label, he will again touch the Print Label Button, at which time the hidden keyboard (156) will retract, and a label will be printed utilizing package label printer (142) (FIGS. 1a, 1b, and 6c). A user may also select to print a bar code label which can be utilized as a Zip + 4 label or a tracking label. This label will be printed automatically using the address information entered by the user and utilizing bar code printer (127) (FIGS. 1a, 1b, and 6c).

DEPR: Once the user has completed pasting on the postage meter strip, the address label, and optionally the bar code label on his package, he will return the package to the secured item acceptance area (106), specifically onto the item-holding platform or bin (408). At this time, the outer security door (108) will automatically close to prevent the user from having access to the package. Once the outer security door (108) is closed, the computer (1308) will perform a second weighing in order to verify that the package weight has not been changed. If the second weight amount does not differ from the first weight amount, the mechanism for depositing the item into the secured storage area is activated by means of a linear actuator (409). The linear actuator (409) causes the platform (408) to tilt via using at least one mechanical arm (404), which in turn will open the inner door (402), and the package (602) will preferably drop onto padded step (403) which dampens the fall of the package (602) as it is deposited into the storage area (410). Once this area is full to the point that the next item is unable to slide off the tilting platform (408), a built-in optical sensor (411) on the platform (408) will prohibit the movement of the linear actuator (409) and will cause a message to appear on the system that the internal storage area (410) is full. It will also send a message to this effect, utilizing Modem (1262), to an external monitoring station which will inform the carrier to provide an unscheduled pick-up.

DEPR: If the user decides to buy a book(s) of stamps, which are the standard type provided by the U.S.P.S., he will be able to do so by either paying with his credit/debit card or utilizing cash (dollar bills) via a cash acceptor (152). To utilize his credit/debit card, the user will follow a similar path as described previously, however he will select Book of Stamps. He then will be required to indicate, by touching the touch-screen, how many books he desires. Once he touches

the desired number, the computer will operate the stamp dispenser relay (1231) and the books will be dispensed via the stamp dispenser (153). If the user selects cash, he will be instructed on the screen to place his money into the cash acceptor (152). Once the correct amount of cash is received by the system, which is transmitted to the computer via a communication port 2 (FIG. 6b), the computer (1308) will activate relay (1231), which in turn will dispense the correct number of books through stamp dispenser (153). The inventive system (100, 101) may also include a user pre-processing area comprising, for example, a work tray (114) and a ruler (116) to assist the user in preparing his or her letters or packages for processing and storing in the system.

DEPR: A system comprising such a tracking bar code system is illustrated in FIG. 1b. As discussed above, however, it is contemplated that additional features, such as a letter weighing scale or postage meter, for example, could be included, as well.

DEPR: Referring now to FIGS. 1b and 5, the mailing system (101) preferably contains an area for processing letters and an area for processing packages. For processing letters and packages, the user begins the operation of the system (101) the same way as for the system (100) described above and illustrated in FIG. 1a. However, for processing letters for U.P.S., for example, the use of special labels or forms containing the tracking bar code for subsequent affixation onto an envelope does not necessitate the use of a weighing scale or postage meter. Similarly, while U.P.S. as well as perhaps some other carriers do base their charges for shipping a package in part on weight, no postage stamp is required, thus rendering a postage meter unnecessary. However, such a system could include a postage meter, if desired.

DEPR: For processing letters requiring a tracking bar code, this alternative embodiment of the inventive system (101) will ensure that no envelope is accepted into the letter tray (134) without first checking that the tracking bar code has been pasted or printed on the envelope, or has been allocated by the computer or scanned manually by the user using the external bar code scanner (151). For U.P.S. and perhaps some other carriers, the user must use designated envelopes and labels or forms for affixation onto the envelope supplied by the carrier, wherein the labels or forms contain the individual tracking bar code. The carrier will charge the user a fixed fee as long as the user uses the designated labels and envelopes for sending his or her documents. These labels and envelopes may be stored in a tilt-out supply cabinet (119), such as the one shown in FIG. 1b, for example. The user will then follow the digitized voice instructions or the visual instructions on the touch-screen 15 (110) to continue the transaction. Once the user has entered all the information requested by the carrier so that the computer can calculate the shipping charge, this shipping charge will be displayed on screen (110), and an Approval Touch Button will be displayed for purposes of continuing the transaction. Once the user has touched this button, the outer letter security door (206) will open to reveal a letter chute (205). Once the user places the envelope into the letter chute (205), the optical sensor (204) will activate the internal bar code scanner (155). Once the bar code scanner (155) reads the tracking bar code on the envelope, linear actuator (202) will open the inner letter door (203), and the envelope will drop into the letter tray (134) below. If the bar code scanner (155) is unable to read the bar code on the envelope, it will request the user to either turn the envelope over or to enter the tracking bar code number utilizing a touch-screen (110) keypad or the external bar code scanner (151), for example. Once this is

completed, the linear actuator (202) will open the internal letter door (203), and the envelope will drop into the letter tray (134) below. However, if the user has selected to print his own shipping label using printer (142), for example, which automatically prints a tracking bar code, or has used the external bar code scanner (151) to scan the bar code before placing the envelope into letter chute (205), the computer will immediately activate linear actuator (202) which will open the inner letter door (203), and the envelope will drop into the letter tray (134).

DEPR: Once the computer (1308) identifies the correct information from the user information card, or example (i.e. if this means for payment is used), it will transmit this information via modem (1262) and telephone line (1264) (FIGS. 6b-6c) to an external credit/debit authorization center. Once the authorization is obtained, the software program will automatically activate the next screen which will request the user to make a selection between various services offered through the particular carrier. By using a communication means, preferably either digitized voice instructions or video instructions, the user will be instructed to place his package into a secured item acceptance area (106). An outer door (108) will automatically open as discussed above, and the user will be able to place his package on an item-holding platform or bin (408) capable of tilting towards the back side of the outer housing (102b) to deposit the item into a secured storage area (410) at the appropriate time. The same outer door mechanism as discussed above for the inventive mailing system (100) and further illustrated in FIG. 3 is applicable to this embodiment of the inventive mailing system (101). Further, the same tilting mechanism used to deposit the item into a secured storage area (410) as already discussed above for the inventive mailing system (100) is used.

DEPR: The user will also be requested to input shipping designation information for the package, including the ZIP code, preferably via the touch-screen activated monitor (110). This information is processed through the computer (1308), and in conjunction with the weight information obtained later for the package, is used to calculate the shipping charge. Referring again to FIGS. 2a-2c, a weighing device (138) comprising a load cell (400) integral with a rotating block (406b) is mounted below the item-holding platform (408) which is integral with at least one mechanical arm (404) used to move the inner door (402). The rotation block (406b) is movably secured to a fixed block (406a). The user is instructed to place the package (602) onto the platform (408), which will activate the weighing device to weigh the item via the load cell (400). The load cell (400), which is connected to the computer (1308) via Analog to Digital weighing card (1202) and the software program, will not weigh the package until such time as the user has removed his or her hand. This is done by utilizing a software algorithm which will detect minute vibrations which are always present when a human being is touching a scale, as discussed above. Once the package (602) is weighed, the computer (1308) will receive the weight measurement via the A/D weighing card (1202) (FIG. 6a) and utilizing the rate tables stored on the computer hard disc (1210) and the software program, as well as the shipping designation data entered, will calculate the cost of sending this package. The user will be asked to touch the screen (110) which displays an Approval Touch Button for continuing the transaction. Once the user touches this button, he will be instructed to return the package to the secured item acceptance area (106) after he has pasted onto his package a tracking label provided by the carrier. Alternatively, if the user wishes to print his own shipping label, he will be able to do so by touching a print label touch button which will activate either a touch-sensitive screen keyboard or a hidden-keyboard (156), which will come out

for the user to use. Once the user has completed typing in the label, he will touch again the Print Label Button, and a label will be printed utilizing package label printer (142). This label will be printed automatically using the shipping address information entered by the user. The printed label will include a tracking bar code which is utilized by the commercial carriers to track the movement of the package. Once the user has completed pasting the address label, which includes the tracking bar code, on his package, he will first scan this tracking label using external bar code scanner (151) and then place the package back onto the item-holding platform or bin (408) in the secured item acceptance area (106). At this time, the outer security door (108) will automatically close to prevent the user from having access to the package. Once the outer security door (108) is closed, the computer will perform a second weighing in order to verify that the package weight has not been changed. If the second weight amount does not differ from the first weight amount, the mechanism for depositing the item into the secured storage area via the tilting motor (138) will be activated by means of a linear actuator (409). The linear actuator (409) causes the platform (408) to tilt via at least one mechanical arm (404), which in turn will open the inner door (402), and the package (602) will preferably drop onto padded step (403) which dampens the fall of the package as it is deposited into the storage area (410) below. The area below the secured item acceptance area (106) is used as an internal storage area (410) for packages or letters. Once this area is full to the point that the next item is unable to slide off the tilting platform (408), a built-in optical sensor (411) on the platform (408) will prohibit the movement of the linear actuator (409) and will display a message on the system that the internal storage area (410) is full. It will also send a message to this effect, utilizing Modem (1262), to an external monitoring station which will inform the carrier to provide an unscheduled pickup.

DEPR: If the user desires to send his letter via Electronic Mail (E-Mail) or to utilize the built-in FAX machine (120), the same system and method as discussed above for mailing system (100) and shown in the figures, such as FIGS. 1a, for example, can be employed. Similarly, an E-Mail system, and F system, a postage stamp service area, and/or a user preprocessing area (as discussed above) may be included in this alternative embodiment of the inventive mailing system (101).

DEPR: The inventive mail system provides a user interface for electronic mail (E-mail) and electronic data interchange (EDI). A user can log into any remote system via the inventive mail system and use his or her personal credit card, for example, to charge for system usage time. A floppy disk device having an opening (124, 126) and coupled to the computer (1308) is available on the outside of the outer housing for data interchange.

DEPR: The inventive system may also include a communication means coupling the computer with the postage meter to provide an automatic meter imprint date change mechanism. The postage meter automatically changes the imprint date at midnight. However, the inventive mail system can send commands through the communication means to the postage meter to activate and advance the date mechanism at a designated article pickup time to reflect and print a new date after the designated pickup for that day. The same date change mechanism is used for holidays and weekends when there is no scheduled article pickup.

DEPV: (1) Credit authorization and charge reporting:

CLPR: 10. The system of claim 5, wherein said postage meter stamp printing and stamps directly onto letters and capable of printing and dispensing postage stamps directly to a user through said outer housing.

CLPR: 11. The system of claim 5, further including a means for positioning said meter into a proper orientation for printing and dispensing said postage stamps.

CLPV: (n) a postage stamp printing means contained within said outer housing and coupled to said computer for printing a postage stamp onto said letter upon receipt and verification of payment by said payment means and approval by said user;

CLPV: (i) a weighing means contained within said automatic transport means and coupled to said computer for weighing said letter prior to transport of said letter to said postage printing means, said weighing means further including a detecting means for detecting minute vibrations, and wherein said detecting means is in communication with said computer to prevent said weighing means from weighing said letter until no vibrations are detected;

CLPV: (j) a postage stamp printing means coupled to said computer and determining means for printing a strip comprising a postage stamp for subsequent affixation onto said item;

CLPV: (e) relaying said service selection input to a postage printing means for printing a postage stamp to move said postage printing means into a proper position;

CLPV: (n) deducting said charge amount from said credit balance; and

CLPV: (o) activating said postage stamp printing means to stamp said letter.

CLPV: (e) relaying input to a postage printing means for printing a postage stamp to move said postage printing means into a proper position;

CLPV: (o) deducting said charge amount from said credit balance upon verification of said credit balance; and

CLPV: (p) activating said postage stamp printing means to dispense a postage meter strip for affixation onto said package.

DOCUMENT-IDENTIFIER: US 5615120 A
TITLE: Electronic postage scale system and method

TTL: Electronic postage scale system and method

ABPL: In an improved electronic postage scale system, non-keyboard devices are used to select shipping service options provided by the system. For example, a bar-code scanner, a voice-recognition device or a remote computer is configured to emulate keycodes from the system keyboard and can be operatively connected through a keyboard interface to select shipping options.

BSPR: In recent years, multifarious postage scales incorporating digital circuitry and microprocessors have been developed. These specialized postage scales are typically equipped with means of weighing packages including letters and parcels, and capable of combining the weight and the shipping rate information stored therein to determine the postage and other charges for shipment of the packages.

BSPR: Many of the electronic scales are also equipped with means of displaying the weight of a package, along with the postage and other shipping charges during the weighing process. For aesthetic reasons, the display screens of such scales are compact and relatively small. As such, the amount of information displayed on one such screen is extremely limited.

BSPR: Because of the existence of the many different carriers and their associated rates and charges, the amount of data to be stored in an electronic scale is substantial, and normally requires a dedicated memory in the form of a programmable read-only memory (PROM). However, whenever there is a change in the postage rates, or other cost factors, such memory needs to be replaced by an updated memory. The replacement undesirably calls for the service of a technician to disassemble the scale to physically remove the existing memory inside the scale.

BSPR: Because of the many different rates and service options involved, the operating portion of an electronic postage scale normally includes many keys, each of which corresponds to a rate or a service option. The size of the operating portion is accordingly large and the presentation of the keys is confusing. The large keyboard would intimidate unskilled operators and leads to errors during a complicated operation. Attempts have been made to reduce the number of keys to simplify the operation. One such attempt involves use of special keys such as shift and/or control keys so that each key, coupled with the special keys, corresponds to two or more rates or service options. Nevertheless, such use of the special keys hardly reduces the complexity of the operation.

BSPR: Thus, it is an object of the invention to provide a postage scale system and method which is easy to operate and perform so as to minimize confusion or misinterpretation by a system user.

BSPR: It is a general object of the invention to provide a postage scale system and method for weighing packages and accurately determining their weight, the requisite postage and other shipping charges for various carriers.

BSPR: Another object of the invention is to provide automatic display of information including the package weight and the cost of shipment on a screen which is easily adjustable for convenient viewing.

BSPR: Another object of the invention is to prevent or deter unauthorized copying of software provided for a postage scale system, and to easily enable selected system options using an authorization number.

DEPR: FIG. 1 illustrates electronic scale system 10 embodying the principles of the invention. System 10 may be used in a mailroom or shipping room of a business establishment to accurately weigh and rate different kinds of packages including letters and parcels before their submission to the USPS, UPS or other carriers for delivery. As shown in FIG. 1, system 10 comprises scale 11 and console 13. Although in this particular embodiment scale 11 and console 13 are depicted as two individual units, it will be appreciated that a person skilled in the art may combine the two units into a single unit if it is so desired. Scale 11 is of conventional design and further comprises platform 15 for placement on top thereof outgoing package 8. As further described hereinbelow, system 10 is adapted to determine the mailing or shipping cost for package 8. It is also adapted to print a manifest, label or tag relating to the shipping of the package, and includes internal memory for accounting for the shipping of such packages.

DEPR: Console 13 comprises display module 16, and keyboard 17 including a multiplicity of keys (not shown in FIG. 1). Frame 12 provides mechanical interconnection of the various parts of console 13. The functions and operations of console 13 are further described hereinbelow. It suffices to know for now that console 13 takes in the electrical signal from scale 11 and, depending on what particular key or keys on keyboard 17 are depressed, console 13 causes display module 16 to display, for example, the weight information and the shipping cost of package 8. In this illustrative embodiment, the weight displayed is in an increment of 0.1 oz. if the package weighs between 0 and 5 lbs., an increment of 0.2 oz. if it weighs between 5 and 15 lbs., and an increment of 0.5 oz. if it weighs between 15 and 100 lbs.

DEPR: In a prior art postal scale, whenever there is a change in the postage rates, shipping charges, or other cost factors, the memory containing such information needs to be replaced by an updated memory. The replacement undesirably calls for the service of a technician to disassemble the scale to physically remove the existing memory inside the scale.

DEPR: In accordance with an aspect of the invention, the rate schedule data is stored in the rate module of the flash EEPROM. Whenever there is a change in the postage rates, shipping charges, or other cost factors, the data in that particular module will be overwritten with new data, rather than replaced as in the prior art. To this end, a user will be provided with an IC card similar to IC card 401. However, this IC card differs from card 401 in that the former needs only one EPROM, say EPROM 403, to contain the new rate schedule data, and header information specifying the nature of the data, the need of downloading the data to the rate module, and the starting address of the rate module.

DEPR: It should be pointed out at this juncture that the key 817 also assumes a secondary function

as an "N" key (see FIG. 13). In accordance with another aspect of the invention, by depressing key 817 alone, the user can communicate either the selection of the UPS Ground service or the letter "N" to system 10. However, to microprocessor 201, both primary and secondary functions associated with key 817 is represented with the same key code. Despite such, in this instance microprocessor 201 unmistakably takes the depression of key 817 as being selection of the UPS Ground service. This stems from the fact that certain intelligence was built in to the carrier service program, and specifically, at this point, microprocessor 201 expects the user to select a class of mail or a function as indicated in window 1001 of FIG. 16. Thus, it does not make sense if microprocessor 201 treats the key code received at step 1503 as being an entry of "N". In this respect, system 10 is, again, superior to prior art postal scales in that system 10 does not require depression of an additional key such as a shift or control key to execute the secondary functions. Moreover, with the built-in intelligence, microprocessor 201 may cause speaker circuitry 243 to beep at the user with a particular tone whenever he/she depresses a key which is unresponsive or not expected by microprocessor 201. Thus, advantageously, the operation of system 10 is much simpler and more conducive to an accurate determination of shipping costs than the prior art scales.

DEPR: For example, in system 10 it may be desirable to increase the capacity of nonvolatile SRAM 250c to include a customer database. Such a database may contain name and address information of individual customers to whom packages are frequently addressed. With this customer database, system 10 can be configured to print, on a connected printer, labels with the customer name and address information, which include mailing labels, UPS COD labels, etc.

CLPV: a processing element for determining shipping cost of said package as a function of said weight and said selection of service; and

CLPV: determining shipping cost of said package as a function of said weight and said selection of service.

DOCUMENT-IDENTIFIER: US 5656799 A

TITLE: Automated package shipping machine

ABPL: A system for accepting and storing items for subsequent pickup by a commercial carrier includes a storage area which is defined by an outer housing, and a customer interface area that includes a weighing unit and a unit, such as a magnetic card reader, for accepting payment from a customer. The system may also include a control system that accepts address information from the customer through a key pad, and then instructs a printer to print an address label for the item. The system includes safeguards which prevent unauthorized access to the storage area, and will not provide a receipt to the customer until internal sensors verify deposit of the item. A manifest printer may also be provided for the benefit of the commercial carriers who service the system, to print out a summary of the transactions that pertain to each carrier. Alternatively, no storage area is provided. Instead, the item is given to a human attendant, such as a check out clerk of a grocery or hardware store and the like, with the appropriate mailing label for validation of receipt of the item by the attendant.

BSPR: This invention relates to the commercial shipping and delivering industry. More specifically, this invention relates to an automated unit for preparing an appropriate mailing label, for validating receipt from a customer of a parcel, package, letter or other item for shipment, and/or for collecting and holding parcels, packages, letters and other items for pick-up by one or more commercial delivery services.

BSPR: It is further an object of the invention to provide a system for printing an appropriate mailing label with the appropriate fee for shipment and for providing a mechanism for verified receipt of an item to be shipped.

BSPR: In order to achieve the above and other objects of the invention, a method of mailing parcels and envelopes using an automated shipping machine according to a first aspect of the invention includes the steps of receiving payment information from a customer; receiving package type information identifying the parcel or envelope to be mailed; weighing the parcel or envelope to be mailed; determining length, width and height dimensions of the parcel or envelope to be mailed; receiving shipping information from the customer including at least a destination of the parcel or envelope to be mailed; computing from the package type information, shipping information, and length, width, height and weight measurements of the parcel or envelope, a delivery date and cost for delivery of the parcel or envelope to the destination via each delivery service option available to the customer; receiving an indication of the delivery service option chosen by the customer; providing a 2~shipping label including at least shipping label 12~ applied thereto; validating that the parcel or envelope received in the receiving step is the parcel or envelope for which the shipping label was printed in the shipping label providing step; securely storing the parcel or envelope in a secure storing area inaccessible to the customer when it is determined in the validating step that the parcel or envelope received in the receiving step is the parcel or envelope for which the 2~shipping label was shipping 12~ receipt for an amount including at least the cost of delivering the parcel or envelope to the destination via the delivery service chosen by the customer; and storing the parcel or envelope in the secure storing area until subsequently picked up by a commercial delivery person.

BSPR: Such a method is implemented by an automated shipping machine including a device for receiving payment information from a customer; a scale for weighing a parcel or envelope to be mailed; a measuring apparatus for determining length, width and height dimensions of the parcel or envelope to be mailed; a processing system for receiving package type information identifying the parcel or envelope to be mailed, shipping information from the customer including at least a destination of the parcel or envelope to be mailed, for computing from the package type information, shipping information, weight information from the scale, and length, width, and height measurements from the measuring apparatus, a delivery date and cost for delivery of the parcel or envelope to the destination via each delivery service option available to the customer, and for receiving an indication of the delivery service option desired by the customer; a printer responsive to the processing system for printing a shipping label including at least the destination printed thereon and for printing a shipping receipt for an amount including at least the cost of delivering the parcel or envelope to the destination via the delivery service chosen by the customer; a validation area for accepting the parcel or envelope, the validation area being inaccessible by the customer and comprising a system for validating whether the parcel or envelope received therein is the parcel or envelope for which the shipping label was printed by the printer; and a secure storage area adjacent the validation area for securely storing the parcel or envelope validated by the validating system, the secure storage area storing the validated parcel or envelope until the parcel or envelope is subsequently picked up by a commercial delivery person.

BSPR: According to another aspect of the invention, a system is disclosed for accepting and storing parcels for subsequent pickup by a commercial carrier. Such a system includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a deposit system, connected to the outer housing, for permitting a customer to deposit the parcel into the storage area, the deposit system comprising a conveyor for moving the parcel into the storage area; an input device for inputting information relating to the destination of the parcel from the customer; a scale for weighing the parcel when the parcel is positioned on the conveyor; and a control system for calculating a shipment fee for the parcel from at least the weight and destination information.

BSPR: According to yet another aspect of the invention, a system for accepting and storing parcels for subsequent pickup by a commercial carrier is provided which includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a secure deposit system, connected to the outer housing, for permitting a customer to deposit the parcel into the storage area, the secure deposit system comprising a holding space that is defined in part by a support surface and an outer door, the outer door being constructed and arranged to deny access to the holding space after a parcel has been deposited on the support surface, the secure deposit system further comprising a system for moving the package from the holding space to the storage area; an input device for inputting information relating to the destination of the parcel from the customer; a scale for weighing the parcel when the parcel is positioned in the holding space, whereby a customer will not be able to interfere with the weighing; and a control system for calculating a shipment fee for the parcel from at least the weight and the destination information.

BSPR: According to still another aspect of the invention, a system is provided for accepting and storing parcels for subsequent pickup by a commercial carrier. This embodiment includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale for weighing a parcel which a customer intends to ship; an input device for inputting information relating to the destination of the parcel from the customer; a control system for calculating a shipment fee for the parcel, the control system being in communication with the scale and the information inputting system; a secure deposit system, enabled by the control system, for permitting a customer to securely deposit the parcel into the storage area; and a stacking system in the storage area for stacking the parcel in the storage area, whereby the volume of the storage area will be efficiently utilized.

DEPR: First, a customer approaches the customer interface area 16, and lays whatever personal effects he or she may have upon the platform 20. The customer then measures the dimensions of the item being shipped on the indicia which is provided on or about platform 20. The video display terminal or screen 24 at this point displays a prompt which instructs the customer to place the envelope, parcel or package on electronic scale 22 and instructs the customer to push a start button on key pad 28 to initiate a deposit. Once control system 100 receives input from electronic scale 22 and the start button, it evaluates the input to check whether the package, parcel or envelope exceeds a pre-determined weight maximum, which preferably is approximately 70 pounds. If the package exceeds the predetermined maximum, control system 100 displays a message on video display terminal 24 to the effect that the system cannot accept packages which exceed the predetermined maximum weight. If the package is within the predetermined weight maximum, control system 100 displays a prompt on video display terminal 24 which instructs the customer to pass a magnetic credit or debit card through magnetic card reader 30. Preferably, system 10 is compatible with most commercial bank cards, as well as any proprietary cards that its commercial client delivery services may issue. After the customer has passed a magnetic card through reader 30, control system 100 evaluates the information received from card reader 30 and determines whether or not the card information meets certain predetermined characteristics. Those characteristics may be the type of card, the expiration date, and whether the card is listed in the CPU memory as a "bad" card. If the information does not meet these criteria, the control system 100 displays a prompt on terminal 24 to pass the card through reader 30 a second time. If the card information is approved by system 100, system 100 will display a prompt on terminal 24 which asks for a phone number where the customer can normally be reached. After the customer enters a phone number through key pad 28, system 100 evaluates the number to see whether it meets predetermined criteria, such as whether the number is either seven or ten digits. If it does not, system 100 displays a second prompt on terminal 24 which asks the customer to reenter the number. If the number meets the selected criteria, system 100 displays a screen which requests the customer to enter the desired zip code of the item which is to be mailed. The customer then enters the destination zip code through key pad 28, and the system 100 evaluates the code against certain criteria, such as whether exactly five digits have been entered. If the criteria are not met, a screen is displayed which instructs the customer to re-enter the zip code. If the zip code that is entered by the customer meets the pre-determined criteria, system 100 displays a screen on terminal 24 which instructs the customer to enter the value of the item that is being deposited. The customer then enters the value of the item through key pad 28. This information is evaluated by system 100 and compared with certain criteria, such as whether it exceeds a predetermined

maximum. If the information does not meet the criteria, the system displays a screen on terminal 24 which instructs the customer to re-enter the evaluation information. If the entered value meets the criteria, system 100 will display a screen which instructs the customer to enter the size of the package. Once the customer enters the size of the package through key pad 28, the system will automatically re-weigh the package without informing the customer. If control system 100 determines that the weight of the package has changed since the original weighing, it will display a screen on terminal 24 which warns the customer against touching the package. At that point, control system 100 again re-weights the package. Once a consistent weight reading is achieved, or if the package weight has remained unchanged since the original reading, system 100 will automatically calculate the charges that are to be applied to the credit or debit card account and will then display a screen on terminal 24 which requests the customer to enter the preferred mode of transportation for the item. At this point, a menu of the fees different services would charge may appear, and the customer can specify which commercial delivery service he or she would like to use by entering the appropriate information through key pad 28. Once this information is received by system 100, system 100 will display a screen on terminal 24 which asks the customer whether the customer would like to change any previous entries. If the customer responds through key pad 28 in the affirmative, the system 100 will display a screen on terminal 24 which allows the customer to select which input the customer would like to change, and, upon entry of the appropriate information by the customer, will allow the customer to change previously-input data.

DEPR: If the customer indicates that all of the previously-input information is still valid, or if all incorrect information has been re-entered correctly, control system 100 will actuate printer 26 to print a mailing label for the package. Preferably, printer 26 is equipped with a peel-type laminated label material which can be peeled off to expose an adhesive backing. Once the label is printed, the customer peels the back off of the label, and places the label on the item that is to be mailed. At this point, control system 100 displays a screen on terminal 24 which instructs the customer to take the label from the printer, to write the mailing address onto the label, to place the label on the package, and to place the envelope or package in the appropriate door. If, because of the previously-input information, control system 100 determines that the item to be mailed is an envelope, it instructs the customer to place the envelope into the dump drop 92. At this point, control system 100 will take no further action until it receives input from the third photoelectric sensor 116 that an envelope has indeed travelled down inclined chute 94 and into the collection space 96.

DEPR: As in the previous embodiments, system 310 of the third embodiment is deployed to a location which is considered convenient to potential customers. Once the system 310 is positioned, the microprocessor 382 is programmed to interface with potential customers by providing the necessary programming input via the program input device 108. In a preferred embodiment, the programming software is written in an event driven language such as LabVIEW.RTM. available from National Instruments Corp. Such event driven software provides a graphical data flow which facilitates the design and troubleshooting of the software. Typically, the loaded information includes the appropriate zone and weight charges for all client delivery services as well as the delivery services available from the licensed commercial delivery service providers. The programmer also loads the corresponding fee files which correspond to each client delivery service available at that location. Once all such information has been loaded into microprocessor 382,

system 310 is ready to interact with potential customers.

DEPR: Upon initialization of system 310 at step 500, it is determined at step 502 whether the customer has initiated a shipping operation by touching the touch screen of CRT 322. If not, a promotional video demonstration is displayed on the CRT 322 at step 504. This promotional video demonstration may include a short demonstration (30-45 seconds) of operation of the system 310 as well as customer instructions, a definition of services, a schedule of pick-up times and the like. This promotional video demonstration repeats constantly until input from the customer is detected at step 502. Upon initiation of a shipping operation at step 502, the customer is instructed at step 506 to insert his or her credit card into the magnetic card reader 328 to provide the necessary payment and identification information. A credit card check is then initiated. Alternatively, a personal debit card provided to the customer may also be read by magnetic card reader 328 for this purpose.

DEPR: When communicating with the remote monitoring facility, the system 310 may send transaction data and credit card charges for all transactions that occurred during a particular day or other time period. In this manner, the remote monitoring facility may be provided with a history of usage including when customers cancel so that steps may be taken to make the system 310 more user friendly to minimize such customer cancellations. Also, a record of errors may be maintained and package supply orders may be maintained in separate files to facilitate processing. Preferably, such data is encrypted and then decrypted at the home office in order to prevent unauthorized access.

DEPR: FIGS. 20-22 illustrate a stand alone automated shipping system 700 constructed in accordance with a fourth embodiment of the invention for generating an appropriate mailing label for application to a parcel, package or envelope for shipment via a commercial carrier. The system illustrated in FIG. 20 is designed for maximum efficiency in a high traffic retail environment such as grocery and hardware stores. It is operated by the customer so that retail store employees are not tied up by the complicated paperwork, weighing and calculating charges previously involved in the shipping of small packages. Also, since all data is transferred directly from the customer to the carrier via the system 700, the liability due to error and omissions of the retail employees is greatly reduced.

DEPR: In this embodiment of the invention, information provided by the customer is used to generate an appropriate mailing label which is then applied to the parcel, package or envelope by the customer. The parcel, package or envelope with the label is then provided to a retail clerk who validates receipt of the package and provides an appropriate receipt to the customer. The retail clerk then places the package in an appropriate location for subsequent pick-up by a commercial carrier.

DEPR: Generally, prior to using the system 700, the customer prepares a parcel or envelope 708 for shipping. The customer then uses the system 700 of the invention to pay for the shipment with a credit card if a credit card payment option is desired and to generate an appropriate shipping label and receipt. The customer then applies the shipping label to the parcel or envelope 708 to be shipped. The customer then brings the parcel or envelope 708 and receipt to the designated

counter for paying the charges for shipment (if cash payment is desired) and deposits the package with the attendant. The attendant then stamps and initials the receipt to validate the shipment and receipt of the parcel or envelope 708 from the customer. The attendant then stores the package in a secure area until the carrier retrieves the package for shipment.

DEPR: As noted above, system 700 is preferably deployed in a retail establishment such a grocery or hardware store. Once the system 700 is in place, the microprocessor 718 is programmed to interface with potential customers by providing the necessary programming input via the program input device 108. As in the third embodiment, the programming software is preferably written in an event driven language such as LabVIEW.RTM. available from National Instruments Corp. Such event driven software provides a graphical data flow which facilitates the design and troubleshooting of the software. Typically, the loaded information includes the appropriate zone and weight charges for all client delivery services as well as the delivery services available from the licensed commercial delivery service providers. The programmer also loads the corresponding fee files which correspond to each client delivery service available at that location. Once all such information has been loaded in the microprocessor 718, system 700 is ready to interact with potential customers.

DEPR: Different types of credit or debit cards as well as cash are suitable for payment at step 806. Typically, bank credit cards and vendor issued debit or credit cards are used. At step 808, system 700 checks to see if the card is valid and not recorded in a "bad" card file. However, if cash is selected for payment, this is recorded by the system 700 and is indicated on the label. The cash is then collected by the cashier at the time of depositing the package at the appropriate counter or other designated deposit area.

DEPR: System 700 then determines at step 812 whether the customer is using a vendor issued credit card. If so, system 700 will display the name of all recent recipients of packages shipped by that customer using system 700. This information is pulled from a consignee file by microprocessor 718. The customer is then given the option at step 814 to select the name of a recipient to which the customer has previously shipped a package. If the desired recipient is indeed listed in the consignee file, system 700 automatically fills in the "ship to" information in the appropriate places on the mailing label at step 816. However, if the recipient of the package is not currently available in the consignee file, system 700 automatically adds the recipient information to the personal consignee file of that customer at step 818 once the customer has entered the shipping data in the system 700. Preferably, a "personal consignee file" is stored for each customer which includes each recipient to which that customer has shipped a parcel or envelope. The personal consignee file is automatically updated to include the latest recipient and is maintained for future use.

DEPR: If it is determined at step 812 that the customer did not use a vendor issued credit card, the customer will be prompted to enter shipping information at step 820 using the keyboard 704. As in a previous embodiment, the customer typically provides the zip code and the system 700 then automatically fills in the city and state from its internal geographical file. System 700 then prompts the customer to enter the name, company name (if appropriate) and street address of the recipient of the package. When the company name field has data entered in it, system 700

automatically designates the shipment as a "commercial delivery" shipment as opposed to a "residential delivery" shipment and so indicates on the mailing label. Also, the customer may also be asked to enter the value of the item. If such data is entered, the input value is evaluated and the package automatically insured up to a predetermined maximum. The customer is then given an opportunity at step 822 to check the validity of the data. If editing of the information is necessary, such editing is performed at step 824 before determining the weight of the parcel or envelope at step 826. Of course, the same zip code checks and the like described above may also be used during the input of the shipping information at step 820.

DEPR: CRT 702 next displays a shipping label at step 842. The customer is given an opportunity at step 844 to check its accuracy and to edit it as required at step 846. If the zip code is edited at step 846, system 700 goes back and recalculates the shipping charges and gives the customer another opportunity to select the service options at step 840. This is necessary because the shipping charges will probably be different when the shipping address is changed. Also, the customer may be given another chance to select data in the consignee file. Data in the consignee file also will be updated to reflect any address changes. Any other changes may be made without requiring recalculations and system 700 may continue processing the shipment. As in the previous embodiment, tracking information such as bar code labels and the like may also be applied to the label if they are of use to the carrier.

CLPR: 2. A method as in claim 1, wherein said payment information receiving step includes the steps of reading the customer's credit or debit card, validating that payment may be received from said credit or debit card, and receiving customer identification information from either said customer or said credit or debit card.

CLPR: 7. A method as in claim 6, wherein said dimensions determining step includes the step of providing a shipping label includes the further step of printing a tracking bar code onto said label, and wherein said step of holographically scanning said parcel or envelope includes the step of reading said tracking bar code with said holographic scanner.

CLPR: 11. A method as in claim 1, wherein said 2~shipping label providing step said shipping label 12~.

CLPR: 12. A method as in claim 11, wherein said shipping label providing step comprises the step of printing a tracking bar code on said shipping label .

CLPR: 17. A method as in claim 13, wherein said validating step comprises the steps of scanning said parcel or envelope within said temporary storage area to determine whether code indicia identifying the parcel or envelope for which said shipping label was printed in said shipping label providing step can be found on said parcel or envelope.

CLPR: 18. A method as in claim 13, wherein said validating step includes the step of preventing closure of said outer door when it is determined in said validating step that the parcel or envelope received in said receiving step is not the parcel or envelope for which said shipping label was printed in said shipping label providing step, and said step of securely storing said parcel or

envelope includes the step of locking said outer door when it is determined in said validating step that the parcel or envelope received in said receiving step is the parcel or envelope for which said shipping label was printed in said shipping label providing step.

CLPR: 27. A method as in claim 1, comprising the further steps of calculating a density of said parcel or envelope from said length, width, height and weight measurements of said parcel or envelope and providing an indication of said density on said shipping label .

CLPR: 31. An automated shipping machine as in claim 30, wherein said means for receiving payment information comprises a magnetic card reader.

CLPR: 40. An automated shipping machine as in claim 39, wherein said shipping label printing means prints a tracking bar code on said shipping label and said holographic scanner and said holographic scanner reads said tracking bar code from said label when said parcel or envelope is in said validation area.

CLPR: 44. An automated shipping machine as in claim 30, wherein said validation means comprises means for scanning said parcel or envelope to determine whether code indicia identifying the parcel or envelope for which said shipping label was printed by said printing means can be found on said parcel or envelope.

CLPR: 45. An automated shipping machine as in claim 32, wherein said processing means prevents closure of said outer door when said validation means determines that the parcel or envelope received in said validation area is not the parcel or envelope for which said shipping label was printed by said printing means, and said processing means locking said outer door when said validation means determines that the parcel or envelope received in said validation area is the parcel or envelope for which said shipping label was printed by said printing means.

CLPR: 46. An automated shipping machine as in claim 30, wherein said validation area further comprises means for opening said inner door and a powered conveyor for transporting said parcel through said opened inner door into said secure storage area when said validating means has determined that the parcel or envelope in said validation area is the parcel or envelope for which said shipping label was printed by said printing means.

CLPR: 49. An automated shipping machine as in claim 30, wherein said printing means prints a tracking bar code as well as said destination on said shipping label .

CLPR: 57. An automated shipping machine as in claim 30, wherein said processing means calculates a density of said parcel or envelope from said length, width, height and weight measurements of said parcel or envelope and said printing means prints an indication of said density on said shipping label .

CLPV: providing a shipping label including at least said destination printed thereon;

CLPV: receiving said parcel or envelope with said shipping label applied thereto;

CLPV: validating that the parcel or envelope received in said receiving step is the parcel or envelope for which said shipping label was printed in said shipping label providing step;

CLPV: securely storing said parcel or envelope in a secure storing area inaccessible to said customer when it is determined in said validating step that the parcel or envelope received in said receiving step is the parcel or envelope for which said shipping label was printed in said shipping label providing step;

CLPV: means responsive to said processing means for printing a shipping label including at least said destination printed thereon and for printing a shipping receipt for an amount including at least the cost of delivering said parcel or envelope to said destination via the delivery service chosen by said customer;

CLPV: a validation area for accepting said parcel or envelope, said validation area being inaccessible by said customer and comprising means for validating whether the parcel or envelope received therein is the parcel or envelope for which said shipping label was printed by said printing means; and

CLPV: control means for calculating a shipment fee for the parcel, said control means being in communication with said weighing means and said information inputting means.

CLPV: control means for calculating a shipment fee for the parcel, said control means being in communication with said weighing means and said information inputting means.

CLPV: control means for calculating a shipment fee for the parcel, said control means being in communication with said scale and said information inputting means;

DOCUMENT-IDENTIFIER: US 5826246 A
TITLE: Secure postage meter in an ATM application

BSPR: Demand for postal services is virtually universal. However, while businesses typically enjoy use of postage meters and thus can avoid the necessity for and inconvenience of trips to post offices or elsewhere to purchase stamps, as well as inconvenience of affixing stamps to mail pieces, such services and advantages are typically unavailable to individuals. Thus, individual users are presently unable to benefit from advantages associated with use of postage metering systems.

BSPR: Another type of an automated postal teller machine is found in U.S. Pat. Nos. 5,313,404 and 5,272,640. The apparatus disclosed therein receives, conveys and weighs mail, calculates postage, classifies mail, prints ZIP codes and records data, in an unmanned condition under control of a microcomputer. As described, the postal teller includes added facilities for accepting payment, incorporating devices for receiving and recognizing money and for providing coin changing. Moreover, the device is required to accept payment by money card, with appropriate accounting.

BSPR: A device in accordance with the invention, when combined with an existing host ATM, thus includes an input/output section for communication with a customer, including a keyboard (or other device) for user input and a display for outputting information to the user, a printer for printing postage indicia, and a communication facility for communicating with either a post office or a remote service center.

BSPR: The inventive device further provides, in an existing secure facility such as an ATM, a secure postage printer controller, controlling the printer for printing postage indicia directly on a mail piece or on a separate postage stamp to be affixed thereto, and a weighing apparatus for weighing the mail piece to determine an appropriate amount of postage to be provided therefor.

DEPR: Advantageously, by providing for communication with remote center 24, the embodiment of FIG. 2 permits the inventive postage meter at an ATM to accept payment from sources other than smart cards, such as credit cards, debit cards, money cards, and cash, all of which are already accessible to the host ATM 10. Thus, full service of the public postage meter, to permit any form of payment, is provided by the embodiment shown in FIG. 2. Moreover, by providing communication with the remote center 24, the embodiment of FIG. 2 permits refilling or resetting of a smart card 20 by accessing a user's account maintained at the remote center 24. Communication between the postage meter in a host ATM and remote center 24, as well as communication between the smart card 20 and meter controller 16 or 16', is implemented in a secure manner.

DEPR: As shown in FIG. 3, at least four interfaces may be provided between the vault and various components with which it communicates, including the components commonly shared with the host ATM and any external components. Thus, a first interface 42 enables communication between microcomputer 32 in the internal vault 31 and a conventional keyboard/display unit 44 external of the secure housing 30. A second interface, printer interface 46, enables the

microcomputer 32 to control a printer 48 for printing the postage indicia. A third interface, communication interface 50, enables the microcomputer to communicate with the remote service center 52 (such as the above mentioned RMRS), via a modem included in the ATM, for example. A fourth interface, smart card interface 54, enables the microcomputer to communicate with the smart card 20 and thus to implement the various functions hereinabove described. It should be understood that, although separate interfaces are shown communicating with the microcomputer, the invention may also be implemented by incorporating software control of the various components within the microcomputer itself, so that the interfaces shown in the drawing are simply and efficiently implemented by use of wiring interconnections.

DEPR: Such modifications may include the following. For example, rather than (or in addition to) providing only one form (or medium) to the existing printer for generating an ATM receipt, in accordance with the invention a separate source of print medium may be used, to provide an adhesive backed (or other) medium for imprinting with postage indicia. Alternatively, an additional intake slot may be provided in the combined housing, along with a known transport mechanism, for receiving mail pieces such as envelopes and the like and for conveying the same to the printer, for direct imprinting of postal indicia thereon.

CLPV: said meter controller using said internal vault for accounting for dispensed postage value paid for by either of said user card or cash.

CLPV: said meter controller using said internal vault for accounting for dispensed postage value paid for by either of said user card or cash.

CLPV: printing indicia corresponding to said postage value.

DOCUMENT-IDENTIFIER: US 5831220 A

TITLE: Automated package shipping machine

ABPL: A system for accepting and storing items for subsequent pickup by a commercial carrier includes a storage area which is defined by an outer housing, and a customer interface area that includes a weighing unit and a unit, such as a magnetic card reader, for accepting payment from a customer. The system may also include a control system that accepts address information from the customer through a key pad, and then instructs a printer to print an address label for the item. The system includes safeguards which prevent unauthorized access to the storage area, and will not provide a receipt to the customer until internal sensors verify deposit of the item. A manifest printer may also be provided for the benefit of the commercial carriers who service the system, to print out a summary of the transactions that pertain to each carrier. Alternatively, no storage area is provided. Instead, the item is given to a human attendant, such as a check out clerk of a grocery or hardware store and the like, with the appropriate mailing label for validation of receipt of the item by the attendant.

BSPR: This invention relates to the commercial shipping and delivering industry. More specifically, this invention relates to an automated unit for preparing an appropriate mailing label, for validating receipt from a customer of a parcel, package, letter or other item for shipment, and/or for collecting and holding parcels, packages, letters and other items for pick-up by one or more commercial delivery services.

BSPR: It is further an object of the invention to provide a system for printing an appropriate mailing label with the appropriate fee for shipment and for providing a mechanism for verified receipt of an item to be shipped.

BSPR: In order to achieve the above and other objects of the invention, a method of mailing parcels and envelopes using an automated shipping machine according to a first aspect of the invention includes the steps of receiving payment information from a customer; receiving package type information identifying the parcel or envelope to be mailed; weighing the parcel or envelope to be mailed; determining length, width and height dimensions of the parcel or envelope to be mailed; receiving shipping information from the customer including at least a destination of the parcel or envelope to be mailed; computing from the package type information, shipping information, and length, width, height and weight measurements of the parcel or envelope, a delivery date and cost for delivery of the parcel or envelope to the destination via each delivery service option available to the customer; receiving an indication of the delivery service option chosen by the customer; providing a 2~shipping label including at least shipping label 12~ applied thereto; validating that the parcel or envelope received in the receiving step is the parcel or envelope for which the shipping label was printed in the shipping label providing step; securely storing the parcel or envelope in a secure storing area inaccessible to the customer when it is determined in the validating step that the parcel or envelope received in the receiving step is the parcel or envelope for which the 2~shipping label was shipping 12~ receipt for an amount including at least the cost of delivering the parcel or envelope to the destination via the delivery service chosen by the customer; and storing the parcel or envelope in the secure storing area until subsequently picked up by a commercial delivery person.

BSPR: Such a method is implemented by an automated shipping machine including a device for receiving payment information from a customer; a scale for weighing a parcel or envelope to be mailed; a measuring apparatus for determining length, width and height dimensions of the parcel or envelope to be mailed; a processing system for receiving package type information identifying the parcel or envelope to be mailed, shipping information from the customer including at least a destination of the parcel or envelope to be mailed, for computing from the package type information, shipping information, weight information from the scale, and length, width, and height measurements from the measuring apparatus, a delivery date and cost for delivery of the parcel or envelope to the destination via each delivery service option available to the customer, and for receiving an indication of the delivery service option desired by the customer; a printer responsive to the processing system for printing a shipping label including at least the destination printed thereon and for printing a shipping receipt for an amount including at least the cost of delivering the parcel or envelope to the destination via the delivery service chosen by the customer; a validation area for accepting the parcel or envelope, the validation area being inaccessible by the customer and comprising a system for validating whether the parcel or envelope received therein is the parcel or envelope for which the shipping label was printed by the printer; and a secure storage area adjacent the validation area for securely storing the parcel or envelope validated by the validating system, the secure storage area storing the validated parcel or envelope until the parcel or envelope is subsequently picked up by a commercial delivery person.

BSPR: According to another aspect of the invention, a system is disclosed for accepting and storing parcels for subsequent pickup by a commercial carrier. Such a system includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a deposit system, connected to the outer housing, for permitting a customer to deposit the parcel into the storage area, the deposit system comprising a conveyor for moving the parcel into the storage area; an input device for inputting information relating to the destination of the parcel from the customer; a scale for weighing the parcel when the parcel is positioned on the conveyor; and a control system for calculating a shipment fee for the parcel from at least the weight and destination information.

BSPR: According to yet another aspect of the invention, a system for accepting and storing parcels for subsequent pickup by a commercial carrier is provided which includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a secure deposit system, connected to the outer housing, for permitting a customer to deposit the parcel into the storage area, the secure deposit system comprising a holding space that is defined in part by a support surface and an outer door, the outer door being constructed and arranged to deny access to the holding space after a parcel has been deposited on the support surface, the secure deposit system further comprising a system for moving the package from the holding space to the storage area; an input device for inputting information relating to the destination of the parcel from the customer; a scale for weighing the parcel when the parcel is positioned in the holding space, whereby a customer will not be able to interfere with the weighing; and a control system for calculating a shipment fee for the parcel from at least the weight and the destination information.

BSPR: According to still another aspect of the invention, a system is provided for accepting and storing parcels for subsequent pickup by a commercial carrier. This embodiment includes an outer housing having inner and outer surfaces, the inner surface defining a storage area which is constructed and sized to store a multiplicity of parcels; a scale for weighing a parcel which a customer intends to ship; an input device for inputting information relating to the destination of the parcel from the customer; a control system for calculating a shipment fee for the parcel, the control system being in communication with the scale and the information inputting system; a secure deposit system, enabled by the control system, for permitting a customer to securely deposit the parcel into the storage area; and a stacking system in the storage area for stacking the parcel in the storage area, whereby the volume of the storage area will be efficiently utilized.

DEPR: First, a customer approaches the customer interface area 16, and lays whatever personal effects he or she may have upon the platform 20. The customer then measures the dimensions of the item being shipped on the indicia which is provided on or about platform 20. The video display terminal or screen 24 at this point displays a prompt which instructs the customer to place the envelope, parcel or package on electronic scale 22 and instructs the customer to push a start button on key pad 28 to initiate a deposit. Once control system 100 receives input from electronic scale 22 and the start button, it evaluates the input to check whether the package, parcel or envelope exceeds a pre-determined weight maximum, which preferably is approximately 70 pounds. If the package exceeds the predetermined maximum, control system 100 displays a message on video display terminal 24 to the effect that the system cannot accept packages which exceed the predetermined maximum weight. If the package is within the predetermined weight maximum, control system 100 displays a prompt on video display terminal 24 which instructs the customer to pass a magnetic credit or debit card through magnetic card reader 30. Preferably, system 10 is compatible with most commercial bank cards, as well as any proprietary cards that its commercial client delivery services may issue. After the customer has passed a magnetic card through reader 30, control system 100 evaluates the information received from card reader 30 and determines whether or not the card information meets certain predetermined characteristics. Those characteristics may be the type of card, the expiration date, and whether the card is listed in the CPU memory as a "bad" card. If the information does not meet these criteria, the control system 100 displays a prompt on terminal 24 to pass the card through reader 30 a second time. If the card information is approved by system 100, system 100 will display a prompt on terminal 24 which asks for a phone number where the customer can normally be reached. After the customer enters a phone number through key pad 28, system 100 evaluates the number to see whether it meets predetermined criteria, such as whether the number is either seven or ten digits. If it does not, system 100 displays a second prompt on terminal 24 which asks the customer to reenter the number. If the number meets the selected criteria, system 100 displays a screen which requests the customer to enter the desired zip code of the item which is to be mailed. The customer then enters the destination zip code through key pad 28, and the system 100 evaluates the code against certain criteria, such as whether exactly five digits have been entered. If the criteria are not met, a screen is displayed which instructs the customer to re-enter the zip code. If the zip code that is entered by the customer meets the pre-determined criteria, system 100 displays a screen on terminal 24 which instructs the customer to enter the value of the item that is being deposited. The customer then enters the value of the item through key pad 28. This information is evaluated by system 100 and compared with certain criteria, such as whether it exceeds a predetermined

maximum. If the information does not meet the criteria, the system displays a screen on terminal 24 which instructs the customer to re-enter the evaluation information. If the entered value meets the criteria, system 100 will display a screen which instructs the customer to enter the size of the package. Once the customer enters the size of the package through key pad 28, the system will automatically re-weigh the package without informing the customer. If control system 100 determines that the weight of the package has changed since the original weighing, it will display a screen on terminal 24 which warns the customer against touching the package. At that point, control system 100 again re-weights the package. Once a consistent weight reading is achieved, or if the package weight has remained unchanged since the original reading, system 100 will automatically calculate the charges that are to be applied to the credit or debit card account and will then display a screen on terminal 24 which requests the customer to enter the preferred mode of transportation for the item. At this point, a menu of the fees different services would charge may appear, and the customer can specify which commercial delivery service he or she would like to use by entering the appropriate information through key pad 28. Once this information is received by system 100, system 100 will display a screen on terminal 24 which asks the customer whether the customer would like to change any previous entries. If the customer responds through key pad 28 in the affirmative, the system 100 will display a screen on terminal 24 which allows the customer to select which input the customer would like to change, and, upon entry of the appropriate information by the customer, will allow the customer to change previously-input data.

DEPR: If the customer indicates that all of the previously-input information is still valid, or if all incorrect information has been re-entered correctly, control system 100 will actuate printer 26 to print a mailing label for the package. Preferably, printer 26 is equipped with a peel-type laminated label material which can be peeled off to expose an adhesive backing. Once the label is printed, the customer peels the back off of the label, and places the label on the item that is to be mailed. At this point, control system 100 displays a screen on terminal 24 which instructs the customer to take the label from the printer, to write the mailing address onto the label, to place the label on the package, and to place the envelope or package in the appropriate door. If, because of the previously-input information, control system 100 determines that the item to be mailed is an envelope, it instructs the customer to place the envelope into the dump drop 92. At this point, control system 100 will take no further action until it receives input from the third photoelectric sensor 116 that an envelope has indeed travelled down inclined chute 94 and into the collection space 96.

DEPR: As in the previous embodiments, system 310 of the third embodiment is deployed to a location which is considered convenient to potential customers. Once the system 310 is positioned, the microprocessor 382 is programmed to interface with potential customers by providing the necessary programming input via the program input device 108. In a preferred embodiment, the programming software is written in an event driven language such as LabVIEW.RTM. available from National Instruments Corp. Such event driven software provides a graphical data flow which facilitates the design and troubleshooting of the software. Typically, the loaded information includes the appropriate zone and weight charges for all client delivery services as well as the delivery services available from the licensed commercial delivery service providers. The programmer also loads the corresponding fee files which correspond to each client delivery service available at that location. Once all such information has been loaded into microprocessor 382,

system 310 is ready to interact with potential customers.

DEPR: Upon initialization of system 310 at step 500, it is determined at step 502 whether the customer has initiated a shipping operation by touching the touch screen of CRT 322. If not, a promotional video demonstration is displayed on the CRT 322 at step 504. This promotional video demonstration may include a short demonstration (30-45 seconds) of operation of the system 310 as well as customer instructions, a definition of services, a schedule of pick-up times and the like. This promotional video demonstration repeats constantly until input from the customer is detected at step 502. Upon initiation of a shipping operation at step 502, the customer is instructed at step 506 to insert his or her credit card into the magnetic card reader 328 to provide the necessary payment and identification information. A credit card check is then initiated. Alternatively, a personal debit card provided to the customer may also be read by magnetic card reader 328 for this purpose.

DEPR: When communicating with the remote monitoring facility, the system 310 may send transaction data and credit card charges for all transactions that occurred during a particular day or other time period. In this manner, the remote monitoring facility may be provided with a history of usage including when customers cancel so that steps may be taken to make the system 310 more user friendly to minimize such customer cancellations. Also, a record of errors may be maintained and package supply orders may be maintained in separate files to facilitate processing. Preferably, such data is encrypted and then decrypted at the home office in order to prevent unauthorized access.

DEPR: FIGS. 20-22 illustrate a stand alone automated shipping system 700 constructed in accordance with a fourth embodiment of the invention for generating an appropriate mailing label for application to a parcel, package or envelope for shipment via a commercial carrier. The system illustrated in FIG. 20 is designed for maximum efficiency in a high traffic retail environment such as grocery and hardware stores. It is operated by the customer so that retail store employees are not tied up by the complicated paperwork, weighing and calculating charges previously involved in the shipping of small packages. Also, since all data is transferred directly from the customer to the carrier via the system 700, the liability due to error and omissions of the retail employees is greatly reduced.

DEPR: In this embodiment of the invention, information provided by the customer is used to generate an appropriate mailing label which is then applied to the parcel, package or envelope by the customer. The parcel, package or envelope with the label is then provided to a retail clerk who validates receipt of the package and provides an appropriate receipt to the customer. The retail clerk then places the package in an appropriate location for subsequent pick-up by a commercial carrier.

DEPR: Generally, prior to using the system 700, the customer prepares a parcel or envelope 708 for shipping. The customer then uses the system 700 of the invention to pay for the shipment with a credit card if a credit card payment option is desired and to generate an appropriate shipping label and receipt. The customer then applies the shipping label to the parcel or envelope 708 to be shipped. The customer then brings the parcel or envelope 708 and receipt to the designated

counter for paying the charges for shipment (if cash payment is desired) and deposits the package with the attendant. The attendant then stamps and initials the receipt to validate the shipment and receipt of the parcel or envelope 708 from the customer. The attendant then stores the package in a secure area until the carrier retrieves the package for shipment.

DEPR: As noted above, system 700 is preferably deployed in a retail establishment such a grocery or hardware store. Once the system 700 is in place, the microprocessor 718 is programmed to interface with potential customers by providing the necessary programming input via the program input device 108. As in the third embodiment, the programming software is preferably written in an event driven language such as LabVIEW .RTM. available from National Instruments Corp. Such event driven software provides a graphical data flow which facilitates the design and troubleshooting of the software. Typically, the loaded information includes the appropriate zone and weight charges for all client delivery services as well as the delivery services available from the licensed commercial delivery service providers. The programmer also loads the corresponding fee files which correspond to each client delivery service available at that location. Once all such information has been loaded in the microprocessor 718, system 700 is ready to interact with potential customers.

DEPR: Different types of credit or debit cards as well as cash are suitable for payment at step 806. Typically, bank credit cards and vendor issued debit or credit cards are used. At step 808, system 700 checks to see if the card is valid and not recorded in a "bad" card file. However, if cash is selected for payment, this is recorded by the system 700 and is indicated on the label. The cash is then collected by the cashier at the time of depositing the package at the appropriate counter or other designated deposit area.

DEPR: System 700 then determines at step 812 whether the customer is using a vendor issued credit card. If so, system 700 will display the name of all recent recipients of packages shipped by that customer using system 700. This information is pulled from a consignee file by microprocessor 718. The customer is then given the option at step 814 to select the name of a recipient to which the customer has previously shipped a package. If the desired recipient is indeed listed in the consignee file, system 700 automatically fills in the "ship to" information in the appropriate places on the mailing label at step 816. However, if the recipient of the package is not currently available in the consignee file, system 700 automatically adds the recipient information to the personal consignee file of that customer at step 818 once the customer has entered the shipping data in the system 700. Preferably, a "personal consignee file" is stored for each customer which includes each recipient to which that customer has shipped a parcel or envelope. The personal consignee file is automatically updated to include the latest recipient and is maintained for future use.

DEPR: If it is determined at step 812 that the customer did not use a vendor issued credit card, the customer will be prompted to enter shipping information at step 820 using the keyboard 704. As in a previous embodiment, the customer typically provides the zip code and the system 700 then automatically fills in the city and state from its internal geographical file. System 700 then prompts the customer to enter the name, company name (if appropriate) and street address of the recipient of the package. When the company name field has data entered in it, system 700

automatically designates the shipment as a "commercial delivery" shipment as opposed to a "residential delivery" shipment and so indicates on the mailing label. Also, the customer may also be asked to enter the value of the item. If such data is entered, the input value is evaluated and the package automatically insured up to a predetermined maximum. The customer is then given an opportunity at step 822 to check the validity of the data. If editing of the information is necessary, such editing is performed at step 824 before determining the weight of the parcel or envelope at step 826. Of course, the same zip code checks and the like described above may also be used during the input of the shipping information at step 820.

DEPR: CRT 702 next displays a shipping label at step 842. The customer is given an opportunity at step 844 to check its accuracy and to edit it as required at step 846. If the zip code is edited at step 846, system 700 goes back and recalculates the shipping charges and gives the customer another opportunity to select the service options at step 840. This is necessary because the shipping charges will probably be different when the shipping address is changed. Also, the customer may be given another chance to select data in the consignee file. Data in the consignee file also will be updated to reflect any address changes. Any other changes may be made without requiring recalculations and system 700 may continue processing the shipment. As in the previous embodiment, tracking information such as bar code labels and the like may also be applied to the label if they are of use to the carrier.

CLPV: computing from said package type information, shipping information, and weight information, a delivery date and cost for delivery of said parcel or envelope to said destination via each delivery service option available to said customer;

CLPV: printing a shipping label including at least said destination printed thereon;

CLPV: validating receipt of said parcel or envelope as the parcel or envelope for which said shipping label was printed; and

CLPV: processing means for receiving package type information identifying said parcel or envelope to be mailed, shipping information from said customer including at least a destination of said parcel or envelope to be mailed, for computing from said package type information, shipping information, and weight information from said scale, a delivery date and cost for delivery of said parcel or envelope to said destination via each delivery service option available to said customer, and for receiving an indication of the delivery service option desired by the customer;

CLPV: means responsive to said processing means for printing a shipping label including at least said destination printed thereon and for printing a shipping receipt for an amount including at least the cost of delivering said parcel or envelope to said destination via the delivery service chosen by said customer; and

CLPV: means for validating receipt of said parcel or envelope as the parcel or envelope for which said shipping label was printed by said printing means, whereby a validated parcel or envelope is taken by an attendant for storage in a secure storage area until said parcel or envelope is subsequently picked up by a commercial delivery person.

DIALOG 06 JULY 2000

File 2:INSPEC 1969-2000/May W4 (c) 2000 Institution of Electrical Engineers
 File 9:Business & Industry(R) Jul/1994-2000/Jul 04 (c) 2000 Resp. DB Svcs.
 File 15:ABI/Inform(R) 1971-2000/Jul 06 (c) 2000 Bell & Howell
 File 16:Gale Group PROMT(R) 1990-2000/Jul 06 (c) 2000 The Gale Group
 File 20:World Reporter 1997-2000/Jul 06 (c) 2000 The Dialog Corporation plc
 File 35:DISSERTATION ABSTRACTS ONLINE 1861-1999/DEC (c) 2000 UMI
 File 65:Inside Conferences 1993-2000/Jul W1 (c) 2000 BLDSC all rts. reserv.
 File 77:Conference Papers Index 1973-2000/May (c) 2000 Cambridge Sci Abs
 File 99:Wilson Appl. Sci & Tech Abs 1983-2000/May (c) 2000 The HW Wilson Co.
 File 148:Gale Group Trade & Industry DB 1976-2000/Jul 06 (c) 2000 The Gale Group
 File 160:Gale Group PROMT(R) 1972-1989 (c) 1999 The Gale Group
 File 233:Internet & Personal Comp. Abs. 1981-2000/Jul (c) 2000 Info. Today Inc.
 File 256:SoftBase:Reviews,Companies&Prods. 85-2000/Jun (c) 2000 Info.Sources Inc
 File 275:Gale Group Computer DB(TM) 1983-2000/Jul 06 (c) 2000 The Gale Group
 File 347:JAPIO Oct 1976-2000/Jan(UPDATED 000611) (c) 2000 JPO & JAPIO
 File 348:European Patents 1978-2000/Jun W03 (c) 2000 European Patent Office
 File 349:PCT Fulltext 1983-2000/UB=, UT=20000525 (c) 2000 WIPO/MicroPatent
 File 473:Financial Times Abstracts 1998-2000/Jul 05 (c) 2000 The New York Times
 File 474:New York Times Abs 1969-2000/Jul 05 (c) 2000 The New York Times
 File 475:Wall Street Journal Abs 1973-2000/Jul 05 (c) 2000 The New York Times
 File 583:Gale Group Globalbase(TM) 1986-2000/Jul 06 (c) 2000 The Gale Group
 File 621:Gale Group New Prod.Annou.(R) 1985-2000/Jul 06 (c) 2000 The Gale Group
 File 623:Business Week 1985-2000/Jun W4 (c) 2000 The McGraw-Hill Companies Inc
 File 624:McGraw-Hill Publications 1985-2000/Jul 06 (c) 2000 McGraw-Hill Co. Inc
 File 636:Gale Group Newsletter DB(TM) 1987-2000/Jul 06 (c) 2000 The Gale Group
 File 810:Business Wire 1986-1999/Feb 28 (c) 1999 Business Wire
 File 813:PR Newswire 1987-1999/Apr 30 (c) 1999 PR Newswire Association Inc

| Set | Items | Description |
|-----|--------|--|
| S1 | 106714 | (POSTAGE OR FEE OR PRICE OR COST OR CHARG???) (5N) (WEIGH????? OR SCALE) |
| S2 | 27612 | (INPRINT???? OR INPRESS???? OR INDICIA OR INDICUM OR STAMP???? OR LABEL) (5N) (FRANK???? OR MAIL??? OR POSTAGE OR SHIP????) |
| S3 | 4741 | (IMPRINT???? OR IMPRESS????) (5N) (FRANK???? OR MAIL??? OR POSTAGE OR SHIP????) |
| S4 | 36092 | (INDICIA OR INDICUM OR STAMP???? OR LABEL) (5N) (PRINT???? OR INPRESS???? OR IMPRESS???? OR INPRINT???? OR IMPRINT????) |
| S5 | 7446 | (S2 OR S3) (5N) (PRINT???? OR INPRESS???? OR IMPRESS???? OR INPRINT???? OR IMPRINT????) |
| S6 | 793 | S1 AND (S4 OR S5) |
| S7 | 166403 | (CARD OR MODULE OR DEBIT OR CREDIT OR SMARTCARD OR SMARTMODULE) (5N) (PAY OR PAID OR PAYING OR PAYMENT OR CHARG????) |
| S8 | 67 | S6 AND S7 |
| S9 | 59 | RD S8 (unique items) [Scanned ti,kwic all] |

9/9/2 (Item 2 from file: 9)
DIALOG(R)File 9:Business & Industry(R) (c) 2000 Resp. DB Svcs. All rts. reserv.

01008170 (THIS IS THE FULLTEXT)

US Post Office Tests Self-Service Centers (The US Postal Service has begun field testing self-service mailing centers built by Unisys Corp. in six locations in Washington's Virginia suburbs)

Newsbytes News Network, p N/A

February 24, 1994

DOCUMENT TYPE: Journal (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 337

1 ABSTRACT: The US Postal Service has begun field testing self-service mailing centers built by
2 Unisys Corp. in six locations in Washington's Virginia suburbs.
3 The computer-assisted machines are designed to provide the full services of the post office,

4 24 hours per day, without requiring a human clerk.

5 The *postage* and mailing centers *weigh* individual pieces of mail and display the
6 postage required based on the destination ZIP code and the class of service. The postal robot
7 accepts *payment* in cash or *credit* and *debit* cards as well. When it takes the payment, the
8 machine then *prints* out a *stamp* that can be used for any mailing, from a postcard to a
9 bowling ball. Stamps can be for any value from \$0.19 to \$99.99, known as a "variable rate
stamp."

10 "It's basically run by a PC inside, with a hard disk, a floppy, just like what's on your
11 desk," Lorraine Galloway of Unisys told Newsbytes. "But it has a lot of specialized software.
12 That's what we do."

13 The machines are a cube, about four feet high, by four feet wide, by two feet deep. The
14 money side of the machine takes both bills and coins, and makes change in coins only, including
15 the Susan B. Anthony dollar coin. "We don't dispense bills," Galloway said. Because of the
16 money inside the machine, a lot of security is built in, Galloway said. "It's like a safe," she said.
17 "Plus there are a lot of sensors. For example, there is a smoke sensor, and a tilt sensor."

18 TEXT: RESTON, VIRGINIA, U.S.A., 1994 FEB 24 (NB) -- The US Postal Service has
19 begun field testing self-service mailing centers built by Unisys Corp. in six locations in
20 Washington's Virginia suburbs.

21 The computer-assisted machines are designed to provide the full services of the post office,

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25 accepts *payment* in cash or *credit* and *debit* cards as well. When it takes the payment, the
26 machine then *prints* out a *stamp* that can be used for any mailing, from a postcard to a
27 bowling ball. Stamps can be for any value from \$0.19 to \$99.99, known as a "variable rate
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31
32

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34 The machines are a cube, about four feet high, by four feet wide, by two feet deep. The
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36 the Susan B. Anthony dollar coin. "We don't dispense bills," Galloway said. Because of the
37 money inside the machine, a lot of security is built in, Galloway said. "It's like a safe," she said.
38 "Plus there are a lot of sensors. For example, there is a smoke sensor, and a tilt sensor."

39 There is also a built in modem, Galloway explained, so if the machine gets concerned that
40 someone is trying to rip it off, it can notify the police. For the Postal Service, the machines offer
41 a lot of advantages. For customers, they offer convenience.

42 However, customer still have to lick the stamps. "The self-sticking stamps are too slippery
43 to hold the ink to print the postage," Galloway said.

44 (Kennedy Maize/19940224/Press Contact: Thomas Lindquist, Lorraine Galloway of
45 Unisys, 703-847-3418)

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9/24/33 (Item 18 from file: 348)

DIALOG(R)File 348:European Patents (c) 2000 European Patent Office. All rts. reserv.

00462862

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(19) Europaisches Patentamt
European Patent Office (11) Publication Number: EP 462427
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(12) EUROPEAN PATENT APPLICATION/SPECIFICATION

(21) Application number: 91108694.0

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(30) Priority: US 536496 900611

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(72) Inventor: Sheng-Jung, Wu, 4Fl. 27, Lane 160 Hsin Sheng S. Road, Sec. 1, Taipei, (TW)

(74) Representative: Lewald, Dietrich, Dipl.-Ing. (7571), Patentanwalt Pienzenauerstrasse 2, D-81679 Munchen, (DE)

(54) An automatic postal teller machine.

(57) An automatic postal teller machine capable of automatically performing the postal operation in an unmanned condition, the operation procedure thereof including auto-conveying, auto-*weighing*, auto- *postage* calculation, auto-fast postal stamp adjusting, auto-money identification, auto-money receiving, auto-money coin changing, auto- *stamping*, auto-*mail* classification, auto-ZIP code *printing* and auto-date recording, wherein by means of commands of a microcomputer, whole mail-processing operation of each mail can be completed in about several seconds. (see image in original document)

9/9/53 (Item 14 from file: 349)

DIALOG(R)File 349:PCT Fulltext (c) 2000 WIPO/MicroPatent. All rts. reserv.

00399116

IMPROVED SYSTEM FOR MAILING AND COLLECTING ITEMS

SYSTEME AMELIORE D'EXPEDITION ET DE RAMASSAGE D'ARTICLES

Patent Applicant/Assignee: U-SHIP USA LTD

Inventor(s):

RAMSDEN Gary W

LILES Kenneth Wayne

Patent and Priority Information (Country, Number, Date):

Patent: WO 9530132 A1 19951109

Application: WO 95US5548 19950427 (PCT/WO US9505548)

Priority Application: US 94235290 19940429

English Abstract

A system (10) for accepting and storing items for subsequent pickup by a commercial carrier includes a storage area (14) which is defined by an outer housing (12), and a customer interface (16) that includes a weighing unit (22) and a unit for accepting *payment*, such as a magnetic *card* reader (30), from a customer. The system may also include a control system (100) that accepts address information from the customer through a key pad (28), and then instructs a *printer* (26) to *print* an address *label* for the item. The system includes safeguards which prevent unauthorized access to the storage area, and will not provide a receipt to the customer until internal sensors verify deposit of the item. Alternatively, no storage area is provided; the item is given to a human attendant, with the appropriate mailing label for validation of receipt of the item given by the attendant

9/9/55 (Item 16 from file: 349)

DIALOG(R)File 349:PCT Fulltext (c) 2000 WIPO/MicroPatent. All rts. reserv.

00307674

AUTOMATED SELF-SERVICE PACKAGE SHIPPING MACHINE
AUTOMATE POUR L'EXPEDITION DE COLIS POSTAUX EN LIBRE-SERVICE

Patent Applicant/Assignee: PI ELECTRONICS INCORPORATED

Inventor(s):

GIL Asher

DARON John B

Patent and Priority Information (Country, Number, Date):

Patent: WO 9217861 A1 19921015

Application: WO 92US2510 19920401 (PCT/WO US9202510)

Priority Application: US 91678063 19910401

English Abstract

A self-service apparatus (100) capable of automatically handling envelopes and packages through various stages of processing, including touch screen (110) to handle various inputs from the customer, digitized voice (112) to prompt the customer and instruct him in the processing, electronic weighing (138), electronic printing (142) of the ZIP+4 barcode, electronic *printing* of the *shipping* *label* (140), electronic *printing* of the receipt (128), electronic printing (140) of the manifest documentation for both the letters and packages, and maintaining of the manifest documentation for both the letters and packages. Mailing charges are deducted from a prepaid magnetic card through the use of a magnetic card reader (122). Maintaining postage and shipping rates, ZIP + 4 CD-ROM directory in order to locate the ZIP+4 information. A dual floppy disk system (124, 126) to allow the mailer to send electronic mail. A built-in facsimile apparatus (120) to allow the customer to send "FAX" information through the telephone line.